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Forest
Service

Washington, D.C.

Report of the Forest Service

Fiscal Year 1981

RPA

Report of the Forest Service

Fiscal Year 1981

February 1982

I am pleased to transmit the Report of the Forest Service for the 1981 fiscal year. This report describes Forest Service accomplishments during the fiscal year and measures them against both the targets planned for in the 1980 RPA Program and those funded by Congress for fiscal year 1981.

The Forest Service, U.S. Department of Agriculture, is responsible for Federal leadership in forestry and carries out this role through four main activities:
--Protection and management of resources on 190 million acres of National Forest System lands.
--Cooperation with State and local governments, forest industries, and private landowners to encourage proper management of non-Federal forest land.
--Research on all aspects of forestry, rangeland management, and forest resources utilization.
--Participation with other agencies in human resource and community assistance programs to improve living conditions in rural areas.

Meeting or exceeding funded targets was the pattern in most Forest Service programs. For example --the amount of timber offered for sale was 300 million board feet in excess of the funded target, the mining operating plans approved or administered surpassed the funded target by more than 6,000, and trail construction and reconstruction came to 44 percent more than the funded target.

As of September 30, 1981, 21,329 permanent full-time employees were on hand to accomplish the work of the agency. Temporary and part-time employees, vital elements in carrying out the work of the Forest Service, totaled 35,000 in July, the peak of this agency's seasonal workforce.

Forest Service expenditures in fiscal year 1981 totaled $2.26 billion. After adjusting for inflation, this is a decrease of 1 percent from 1980.

Revenue from Forest Service programs is generated from such sources as timber sales, grazing permits, mineral leasing, and recreation user fees. Last year's receipts totaled $1.14 billion. The bulk of the receipts, 83 percent, was generated by timber sales.

Firefighting has always been a highly visible activity of the Forest Service. In fiscal year 1981, the most destructive blaze was the Panorama Fire near San Bernardino, California. Both National Forest System and State and Private Forestry funds and personnel were used to suppress the flames. Damage from this and other southern California wildfires during a 17-day period was estimated at $30 million.

Planning was completed which led to the designation of the Mount St. Helens National Volcanic Area, consisting of 84,710 acres. Its purpose is to protect the scenic and geological features of the volcano area for public education, interpretation, recreation and research.

The National Forest System produces a continuous supply of timber, minerals, recreational opportunities, wildlife, forage, and water for the Nation. Expenditures for these programs in 1981 were $1.83 billion.

A total of 12.2 billion board feet of National Forest timber was offered for sale during 1981. Ninety-four percent of that was sold for $1.8 billion. Income from 1981 timber sales will be received as the timber is harvested in future years.

While timber sales remained at pre-1981 levels, harvest was down for the second consecutive year. Over 8 billion board feet were removed from National Forest timber sale areas.

In addition to the timber sale program, this report also discusses silvicultural examinations, reforestation, timber stand improvement, and fuelwood.

Increased demands for energy and strategic minerals have had a great impact on the management of National Forest System lands. The enormous increase in lease and operating plan requests has created a backlog of unprocessed applications. During fiscal year 1981, that backlog was reduced nearly 40 percent. The agency is further streamlining its procedures in order to eliminate the remaining backlog.

In fiscal year 1981, about 236 million recreation visitor-days were recorded on National Forests--4 percent more than the estimate in the RPA Program. This was a slight increase over 1980 and continues the trend of annual increases in total recreation use of the National Forests since records have been kept. Breaking down this 1981 total, dispersed use increased by 2 percent over 1980, but developed recreation use fell slightly, primarily because of poor snow conditions for skiers. As a result of this decrease, receipts from special use permits, such as for ski areas and recreation residences, were down 8 percent in 1981. Receipts from recreation users were up 24 percent, largely because of higher campground fees, which were raised to reduce competition with the private sector.

About 7.5 million National Forest acres were added to the National Wilderness Preservation System in fiscal year 1981, as Congress passed legislation

designating lands in Alaska, Colorado, Louisiana, Missouri, New Mexico, South Carolina, and South Dakota. The Forest Service now administers 32 percent of the Nation's Wilderness, 84 percent of it in the contiguous 48 states.

Habitat improvements for wildlife centered on the more popular animals, such as deer and small game, in 1981. Fisheries habitat emphasized anadromous fish--those that return to freshwater rivers from the sea in order to spawn. Attention was also given to many threatened and endangered species--Kirtland's warbler, grizzly bear, and California condor, to name a few.

About 8.8 million animal unit months (AUM's) of forage from National Forests and Grasslands were grazed in the operation of 15,000 ranches and farms. Receipts for grazing use totaled $14.9 million. However, livestock is not the only user of National Forest rangelands--32,000 AUM's of grazing by wild horses and burros were also part of the range program.

Two of the major activities of soil and water programs are resource improvement and inventories. Fiscal year 1981 saw improvements such as those to control drainage, reduce erosion, and stabilize streambanks on 4,450 acres. Inventories, which provide information on soil productivity, water yield and quality, and condition of the watershed, were made on 8.7 million acres.

About 1,200 miles of road were built or reconstructed with appropriated funds, up 300 miles from 1980. In addition, timber purchasers built more than 7,300 miles of road in lieu of cash payments for timber. Another 1,500 miles of road were built by the Forest Service under the purchaser election option. Over 278,000 miles of road were maintained on National Forest System lands in 1981.

State and Private Forestry programs, with expenditures of $88 million, assisted State governments with the detection and suppression of forest insects and diseases, prevention and control of fire in rural areas, and assistance to owners of private forest land, among other activities.

Surveys to detect and evaluate forest pests were made on 750 million acres of land of all ownerships last year. This exceeded the RPA target by about 300 million acres.

Gypsy moth, spruce budworm, southern pine beetle, dwarf mistletoe, and mountain pine beetle were some of the pests suppressed on a total of 3.4 million acres.

To help meet the Nation's future softwood needs, State nurseries in the South were expanded and the tree improvement program was accelerated. A 20 percent increase in pine reforestation was accomplished, and 30 million pine seedlings were produced. Throughout the Nation, nearly half a million acres of private land were reforested.

Forest Research programs develop scientific and technical knowledge to support the management of the Nation's 1.6 billion acres of forest and range lands.

During the past year, research efforts were increased in five major areas as planned in the 1980 RPA Program: softwood utilization and management; Eastern hardwoods; integrated pest management; rangeland research; and disturbed area rehabilitation.

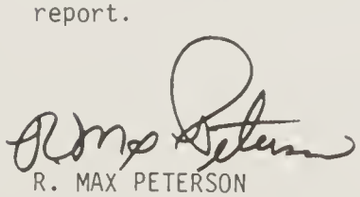
In fiscal year 1981, Forest Service research expenditures totaled $132 million, approximately 11 percent of which supported extramural research studies. Forest Service scientists authored about 2,000 scientific publications; were awarded 19 public patents; and participated in many workshops, symposia, demonstrations, and training sessions designed to put research technology in use. In addition, a program to determine more precisely the benefits of forestry research was initiated.

The Forestry Intensified Research (FIR) Program, which addresses difficult regeneration problems in Southwestern Oregon and northern California, made significant progress. Completion of this 10-year research program is expected to pay large dividends on Federal forest lands. Technology to harvest and reforest the estimated 177,000 acres of Federal lands removed from the timber base could produce direct annual benefits from timber sales of more than $50 million.

The goal of Forest Service Human Resource Programs is to provide jobs and training while carrying out high priority conservation work. During fiscal year 1981, $127.2 million was allocated for the Forest Service to operate four major programs: Job Corps, Senior Community Service Employment Program, Youth Conservation Corps, and Young Adult Conservation Corps.

These programs served 32,800 unemployed, underemployed, minority, economically disadvantaged, young, and elderly persons. The amount of work accomplished by these persons equaled 11,800 person-years and was valued at $114.2 million.

These are some of the highlights detailed in this report.



R. MAX PETERSON
Chief

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THE FOREST SERVICE--WHAT IT IS AND WHAT IT DOES

The Forest Service has the Federal responsibility for national leadership in forestry. This role spans about one-third of the nation's total land area--forests, range and grasslands, brushlands, alpine areas, lakes, ponds, streams, and wildlife habitats. In carrying out its national forestry leadership role, the Forest Service undertakes a great variety of activities. The major jobs include:

Management of the National Forests and Grasslands--The Forest Service manages 190 million acres of public lands under the multiple use management concept for the sustained flow of timber, fish, wildlife, water, forage, and outdoor recreation. These lands consist of 155 National Forests, 19 National Grasslands, and 18 Land Utilization Projects located in 44 states, Puerto Rico, and the Virgin Islands.

Some of the diverse management and protection activities include selling timber, enhancing wildlife habitat, surveying property boundaries, designing and constructing roads, managing campgrounds, building trails, fighting fires, controlling avalanches, monitoring water quality, protecting soil, and educating Forest visitors about the wise use of our Nation's wildlands.

Cooperative Forestry--The Forest Service cooperates with the 50 States, local governments, forest industries, and private landowners to promote good forestry land management practices on non-Federal forest lands and efficient utilization of the Nation's wood supply. Most of the technical and financial assistance is provided through the State forestry organizations. Technical and financial assistance was extended for a varied mix of projects such as controlling tree diseases and damaging insects and rodents, producing and improving seedlings, reducing soil erosion, using trees for passive energy conservation, reforestation, improving timber stands, fire protection, and developing wildlife habitat.

Forest Research--The Forest Service has the world's largest forestry research organization with 970 scientists conducting research on about 4,000 studies. The scientists are located at 81 laboratories and other scientific facilities throughout the United States, including Puerto Rico and the Pacific Trust Islands.

Forest Service researchers conduct a wide variety of studies in the areas of biological, physical, and social sciences. The results of these studies are then made available to agency professionals and the public through publications, films, and computer programs.

The Forest Service also represents the U.S. Government in most world forestry matters. In cooperation with the Department of State and the Food and Agriculture Organization (FAO) of the United Nations, technical assistance is provided to other countries who need American expertise to help solve their forestry problems.

Human Resource Development--Ever since the Civilian Conservation Corps of the 1930's, National Forests have provided work and training for the Nation's underemployed. Today, the Forest Service participates in many Federal human resource and community programs aimed at putting people to work, training disadvantaged youth, and improving living conditions in rural areas.

Most of the work of the Forest Service is done at the local level where the Forests and the people who depend upon them are located. Because of this, the Forest Service is one of the most decentralized agencies in the Federal Government with most decisions made at the local level.

FOREST AND RANGELAND RENEWABLE RESOURCES PLANNING ACT (RPA)

In 1974, Congress enacted the Forest and Rangeland Renewable Resources Planning Act (RPA), which directed the Secretary of Agriculture to prepare a comprehensive, long-range Assessment for the Nation's renewable resources and a Program for Forest Service activities.

The act requires a national Assessment to be made every 10 years of forest and range land renewable resources--timber, range, water, fish, wildlife, outdoor recreation, and wilderness. Projections are made of future supply and demand for each of these resources. Based on these projections, the RPA Assessment identifies the potential opportunities to meet the Nation's future needs.

The findings of the RPA Assessment are the basis for developing a long-range RPA Program every 5 years. The RPA Program represents the Secretary's recommended level of future outputs and associated costs for Forest Service programs. It is transmitted to Congress along with the President's Statement of Policy. Congress may accept or revise the Statement of Policy. Once accepted, the RPA recommended Program and Statement of Policy, as well as other policy direction, serve as a guide to future Forest Service planning and provide one basis for development of budget proposals.

The first RPA Assessment and Program were completed in 1975. The second Assessment was completed in 1979 and a new RPA Program developed in 1980.

The 1980 RPA Program identified the range of output levels recommended by Secretary Bergland for each good or service planned. With the Program, President Carter transmitted to Congress a Statement of Policy. In December 1980, Congress revised the Statement of Policy and generally accepted the upper end of the range, or "high bound," of the Program.

The revised Statement of Policy is on page 147 of this report.

ANNUAL REPORT TO CONGRESS

The act also requires the Secretary to submit an Annual Report to Congress on Forest Service accomplishments and progress in implementing the RPA Program. This report covers fiscal year 1981 1/, the first year under the 1980 RPA Program.

Required in the report are:

--A description of the status of major research programs, significant findings, and how these findings will be applied in National Forest System management and in State and Private Forest Service programs.

--A description of the cooperative forestry assistance programs including status, accomplishments, needs, and work backlogs.

--A report on the progress of incorporating the legislatively required standards and guidelines into the land management plans for units of the National Forest System.

--A summary of estimated expenditures, on a representative sample basis, for reforestation, timber stand improvement, and the sale of timber from the National Forest System, compared to the return to the Government from such timber sales.

--An identification, on a representative sample basis, of advertised timber sales made below the estimated expenditures mentioned above.

This document includes other reports that Congress requires at the time of the annual report. These are:

--A report identifying the amount and location, by Forest, State, and productivity class, where practicable, of all lands in the National Forest System where land management plans have indicated the need to reforest areas that have been cut over or otherwise denuded or deforested and all lands with stands of trees that are not growing at their best potential.

--A report estimating the appropriations necessary to replant and otherwise treat an acreage equal to the acreage to be cut over that year, plus a sufficient portion of the backlog of lands found to be in need of treatment to eliminate the backlog within the 8-year period between the passage of RPA and the end of fiscal year 1982.

--A report on the amounts, types, and uses of herbicides and pesticides used in the National Forest System, including the beneficial or adverse effects of such uses.

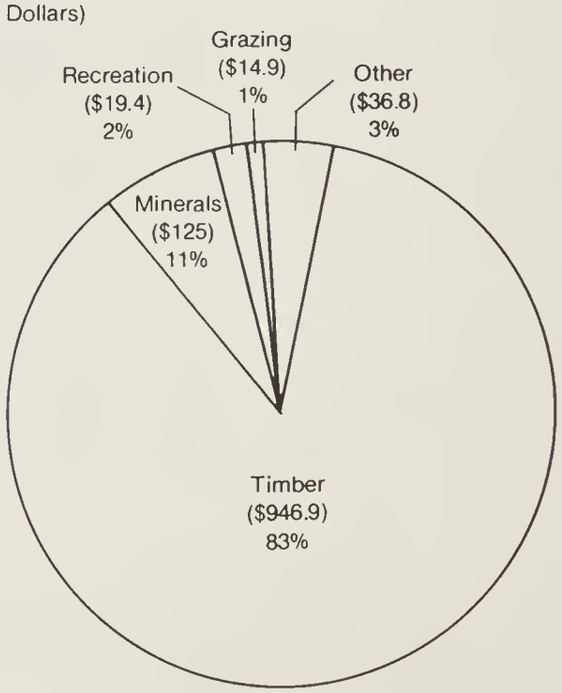
RECEIPTS AND EXPENDITURES

The Forest Service receives operating funds through the congressional appropriation process and from a variety of cooperator deposits. Receipts are generated from such Forest Service operations as timber sales, grazing fees, and mineral leases and permits. Twenty-five percent of Forest Service receipts are returned to States and counties that contain National Forests and Grasslands.

Receipts for fiscal year 1981 totaled $1.14 billion and expenditures totaled $2.26 billion. Timber receipts in the forms of cash, deposits, and roads in lieu of cash accounted for 83 percent, or $947 million, of total agency revenue in 1981 (see Figure 1). Receipts from mineral leases,

Figure 1.

Distribution of Receipts by Program
(Million Dollars)



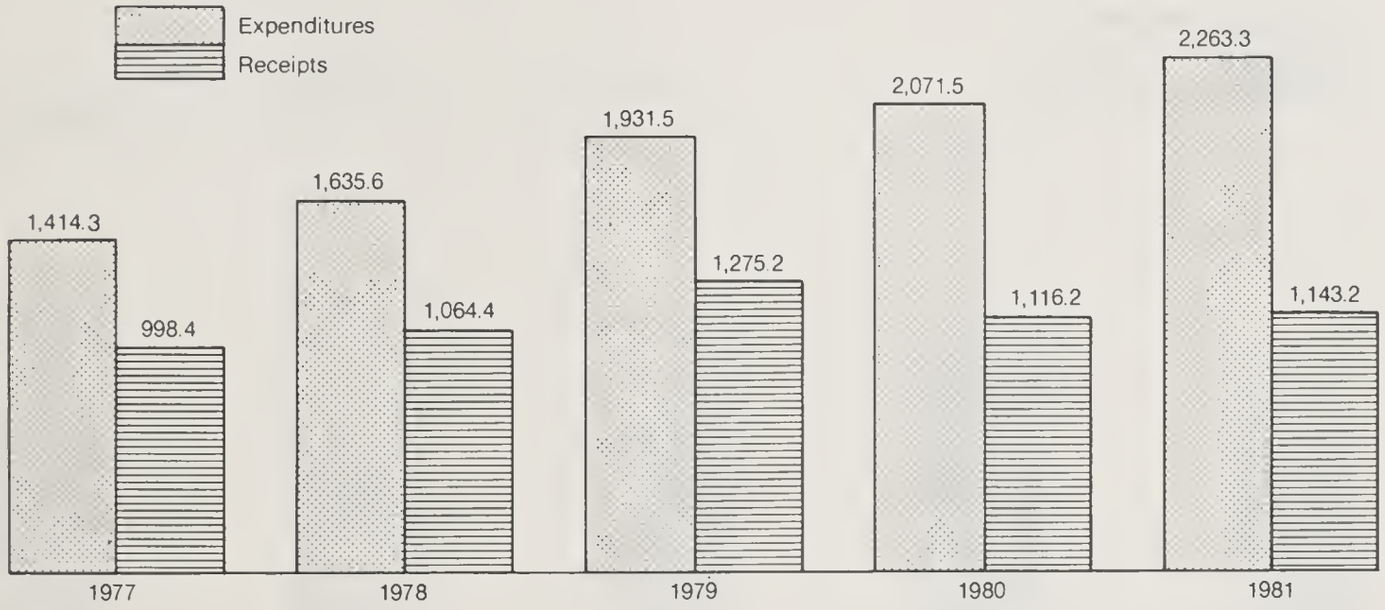
Total 1981 receipts—$1,143 million

1/ Unless otherwise stated, all references to years in this report are fiscal years.

Figure 2.

Expenditures and Receipts*

(Million Dollars)



*See table 2, footnote 2

royalties, sales, and bonus bids were the second largest source of revenue at 11 percent, or $125 million, of total receipts. Other sources included recreation fees, land use permits, grazing fees, and royalties from the sale of Smokey Bear and Woodsy Owl products (see Table 1).

As shown in Figure 2, receipts in 1981 were up 2 percent compared with 1980, but down 10 percent from the all-time high in 1979 (see Table 2). This drop was principally the result of a "soft" timber market. Mineral receipts, however, were up 53 percent between 1979 and 1980 and up another 44 percent between 1980 and 1981.

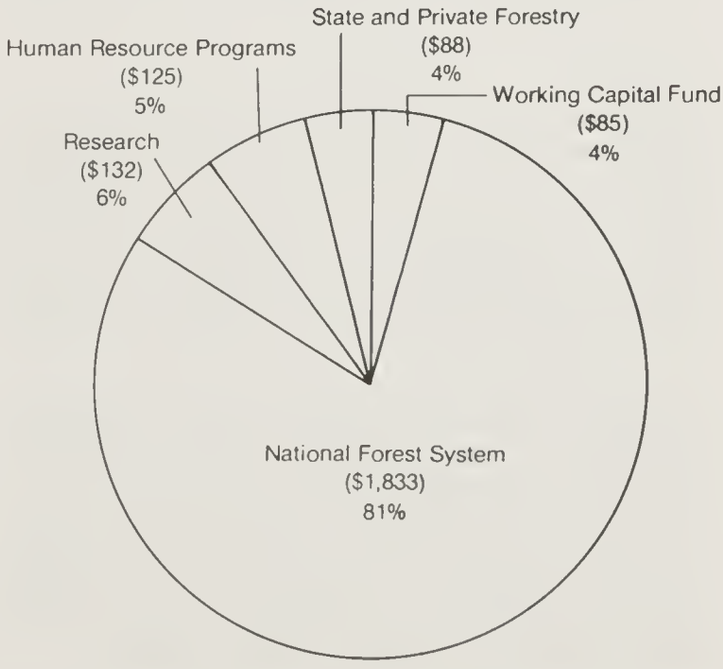
Managing the National Forest System in 1981 required 81 percent of all Forest Service expenditures (see Figure 3, Table 3, and Table 4). Forest Research spent 6 percent, Human Resource Programs 5 percent, and State and Private Forestry 4 percent of the budget. Working Capital Fund, used to replace vehicles and heavy equipment, amounted to 4 percent of expenditures.

Under law, the Forest Service pays the States 25 percent of National Forest receipts to be used for public schools and roads in counties containing National Forest System lands. In fiscal year 1981, the Forest Service paid $233.6 million to the States from money received from National Forests in fiscal year 1980; the agency paid $6.7 million to

Figure 3.

Distribution of Expenditures by Program Area

(Million Dollars)

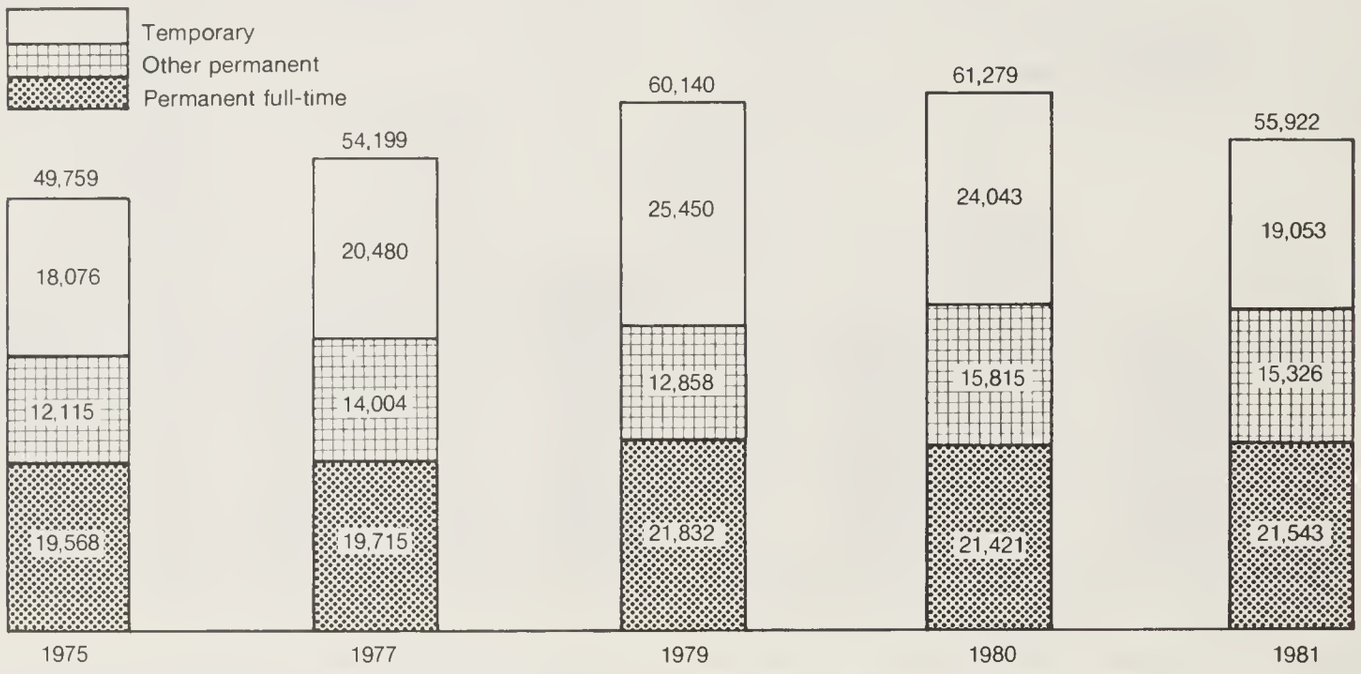


Total 1981 expenditures—$2,263 million

Figure 4.

Distribution of Work Force by Tour of Duty (As Reported in July of Selected Years)

(Employees)



counties from receipts from National Grasslands and Land Utilization Projects in calendar year 1980. In addition, Arizona received $161,000 and Minnesota received $712,000 under other statutes.

PERSONNEL

Permanent full-time employees numbered 21,329 as of September 30, 1981. This is an increase of 690 or 3 percent since 1977. New and revised legislation passed during the 1970's has had a significant effect on the makeup of this work force. The shifts in staffing reflect an additional emphasis on intensive management including increased concerns for both environmental quality and greater resource productivity.

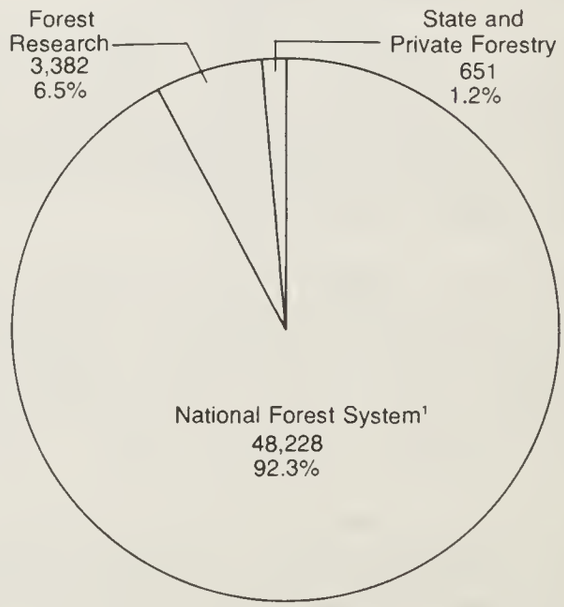
Of the major occupational groups among permanent full-time (PFT) employees, the professional occupations constitute the largest category of positions with 8,278, which is 38 percent of the PFT work force. Technical employees rank second with 7,482, or 35 percent of the PFT work force. Foresters and civil engineers are the largest single professional occupations, and forestry technicians and engineering technicians are the largest technical occupations (see Table 5).

Peak employment for the Forest Service is July because of the seasonal work force. Most of those

Figure 5.

Distribution of Total Work Force by Program Area

(Number of Employees as of September 30, 1981)



[1]Includes Office of Information, Programs and Legislation, and Administration

hired for summer employment are technicians or aides. In July 1981, employees of the Forest Service numbered about 55,900, both permanent and temporary; in 1977, there were about 54,200 (see Figure 4). The agency had 5,400 fewer employees in 1981 than the previous year. Most of this reduction was among temporary employees; their number dropped from about 24,000 to 19,000.

As shown in Figure 5, 92 percent of the work force at the end of fiscal year 1981 was with the National Forest System. Research had 7 percent and State and Private Forestry employed 1 percent (see Table 6).

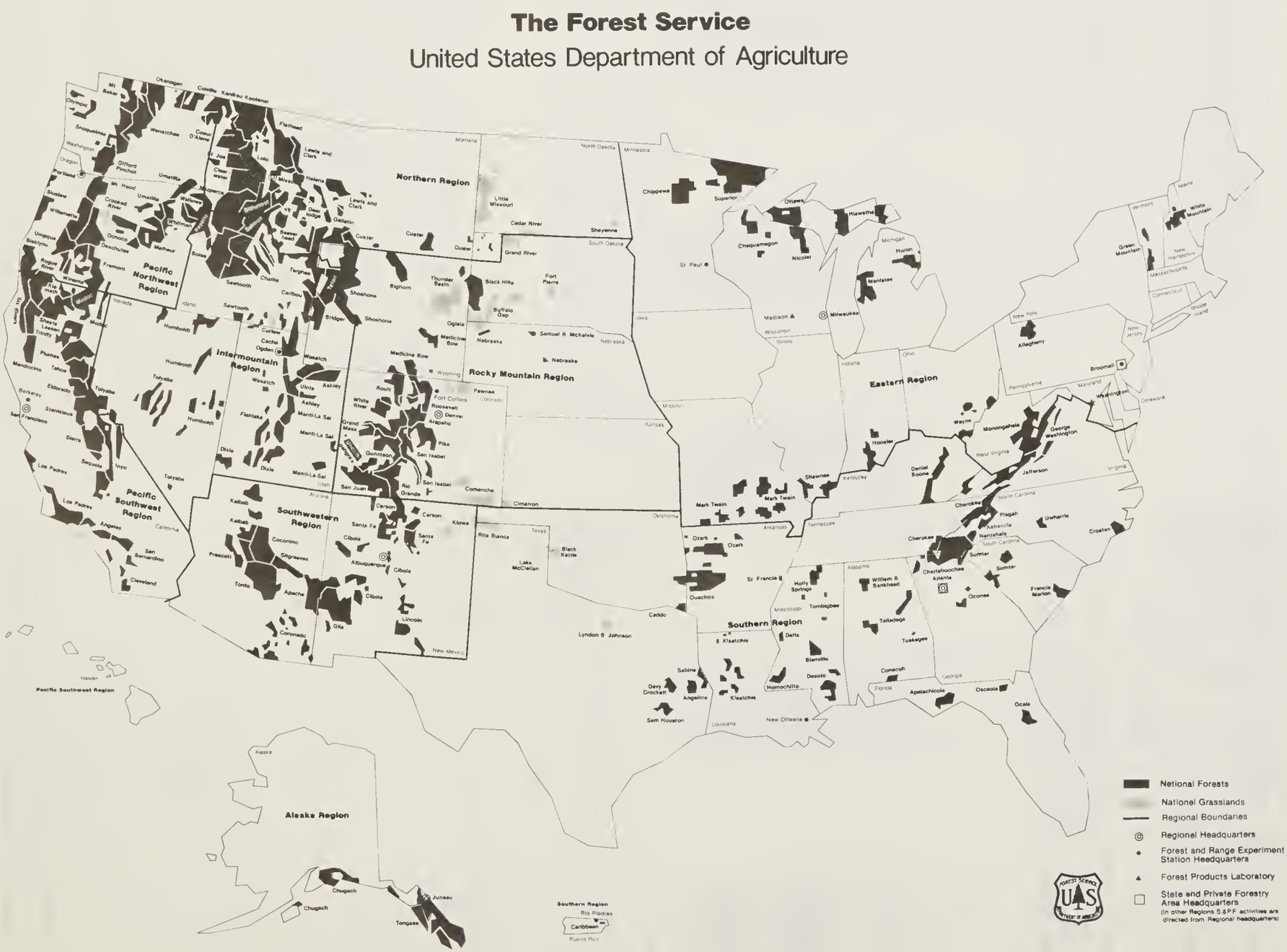


Figure 6. National Forests and other lands administered by the Forest Service.

INTRODUCTION

The Forest Service is responsible for the management and protection of the 190 million acres of National Forest System (NFS) lands, the majority of which is in the western United States (see Figure 6).

The natural resources on these lands are some of the Nation's greatest assets, and how these resources are used and protected affects the economic, environmental, and social well-being of every citizen. Renewable resources including recreational opportunities, forage, wood, wildlife and fish habitat, and water are the products of the National Forests. Nonrenewable resources such as oil, gas, coal, and hardrock minerals are also produced.

The 1980 RPA Program provided overall direction for the management of National Forest resources for 1981-85. Most funded output levels for fiscal year 1981 have been met or exceeded. Tables 8 and 9 show the percentages of accomplishments as well as costs. Discussion of the key outputs and other program information follow.

LAND MANAGEMENT PLANNING

The National Forest Management Act (NFMA) of 1976 directed the Secretary of Agriculture to develop an integrated land and resource management plan for each administrative unit of the National Forest System by 1985. To implement the requirements of the NFMA, regulations were developed to guide land and resource management planning.

These regulations, under review by the Administration during 1981, require an integration of planning for all resources such as recreation, fish and wildlife, water, timber, range, and wilderness. NFMA integrated planning replaces planning by individual resource, which required the development of 48 separate major plans on each Forest and 1,200 "unit" management plans. These plans are being replaced with nine Regional plans and 120 National Forest plans. This will provide more comprehensive, consistent management direction.

Nine draft Regional Plans and Environmental Impact Statements (EIS) have been prepared which distribute 1980 Resources Planning Act (RPA) Program output levels to the National Forests, establish pertinent Regional standards and guidelines, and resolve Regional issues and management concerns. All draft plans and EIS's were issued for public comment in early fiscal year 1982.

Plans for 120 National Forests are being prepared. Eight draft Forest plans and EIS's were completed in fiscal year 1981 and published in early fiscal year 1982. These plans cover the following forests:

Sierra (CA)
Uinta (UT)
Black Hills (SD)
Arapaho & Roosevelt (CO)
Targhee (ID)
Santa Fe (NM)
Lolo (MT)
Nebraska (NE)

The Forest Service remains committed to have Forest plan data available in 1983 for the 1985 RPA Program analysis. However, completion of planning documents for some Forests may have to be carried over until fiscal year 1984. About half of the total planning effort has been completed. The portion of the planning process completed in 1981 consists basically of gathering data and preparing analyses to provide a basis for formulating alternatives.

RESOURCE PROTECTION

Minerals

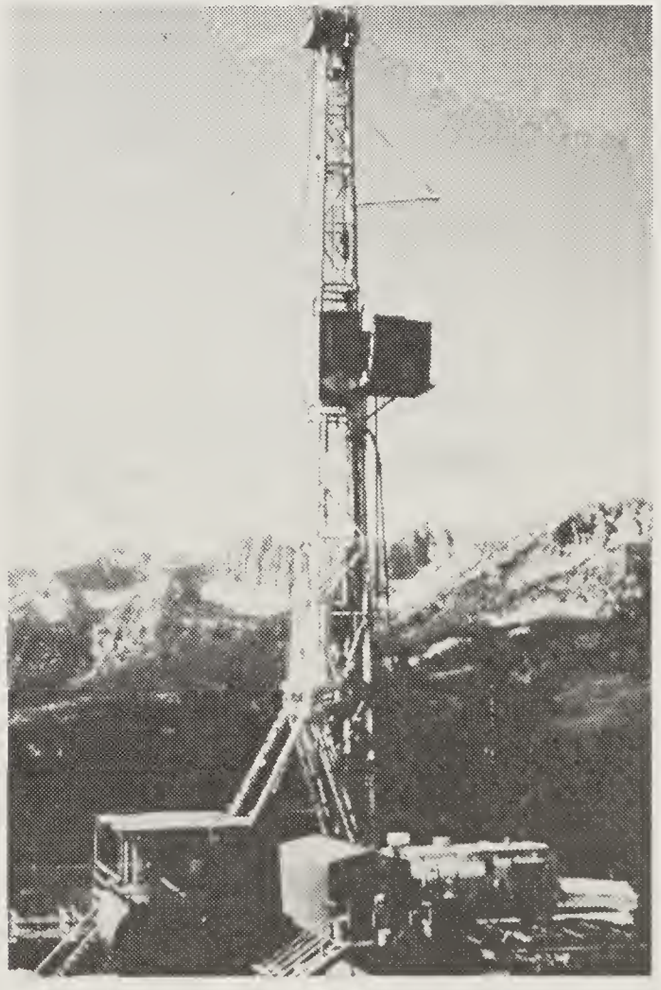


Figure 7. Oil and gas exploration in Montana.

In recent years, energy and strategic minerals have become increasingly important to the Nation's economy and security. National Forest System lands are playing a growing role in supplying these minerals.

Energy and mineral resources found beneath NFS lands include oil, natural gas, coal, geothermal steam, and uranium. Some of the strategic minerals are chromium, nickel, tungsten, molybdenum, and vanadium. Other minerals include gold, copper, silver, lead, barite, and phosphate.

The role of the Forest Service in mineral exploration and development is one of cooperation with the Department of the Interior, primarily the Geological Survey and Bureau of Land Management. These agencies are responsible for the resources beneath the surface, while the Forest Service is responsible for the resources on the surface. The Forest Service reviews industry applications for exploration, development, and production activities to insure that the surface resources have been fully considered. Where these activities would significantly affect the environment, the Forest Service prepares environmental impact statements as required by law.

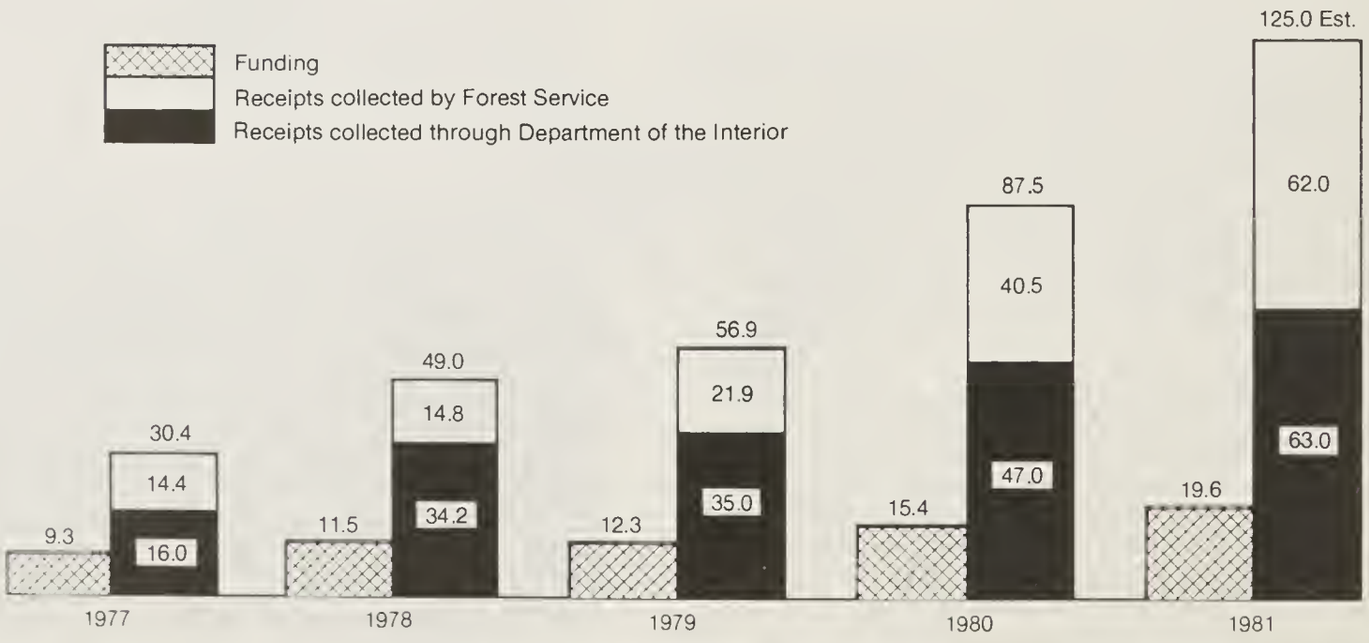
The national goal to become energy self-sufficient, plus increased mineral demands and the control of various mineral supplies by foreign countries, have contributed to recent extensive leasing and mining activities on NFS lands. These exploration, development, and production activities are placing significantly increased workloads on land managers to provide for mineral extraction while protecting the Forest's renewable resources. As mineral development becomes more economically attractive to private industry, the Forest Service becomes increasingly involved in minerals management activities.

This situation resulted in a backlog of 7,301 unprocessed lease requests and operating plans at the beginning of fiscal year 1981. In an effort to reduce this backlog, the Forest Service reemphasized the importance of processing leases, and thus exceeded funded output levels by 23 percent. Even though there were increases in new lease applications, the backlog of unprocessed requests and plans was reduced by 2,797 to finish 1981 with a backlog of 4,504. The agency is now streamlining procedures to allow for more timely response on lease applications and operating plans and to reduce the backlog further.

During fiscal year 1981, about 25,000 operating plans were approved or administered, 30 percent more than the funded program. Receipts from rents, royalties, sales, and bonus bids for minerals increased 44 percent--from $87 million in fiscal year 1980 to an estimated $125 million in 1981 (see Figure 8).

Figure 8.

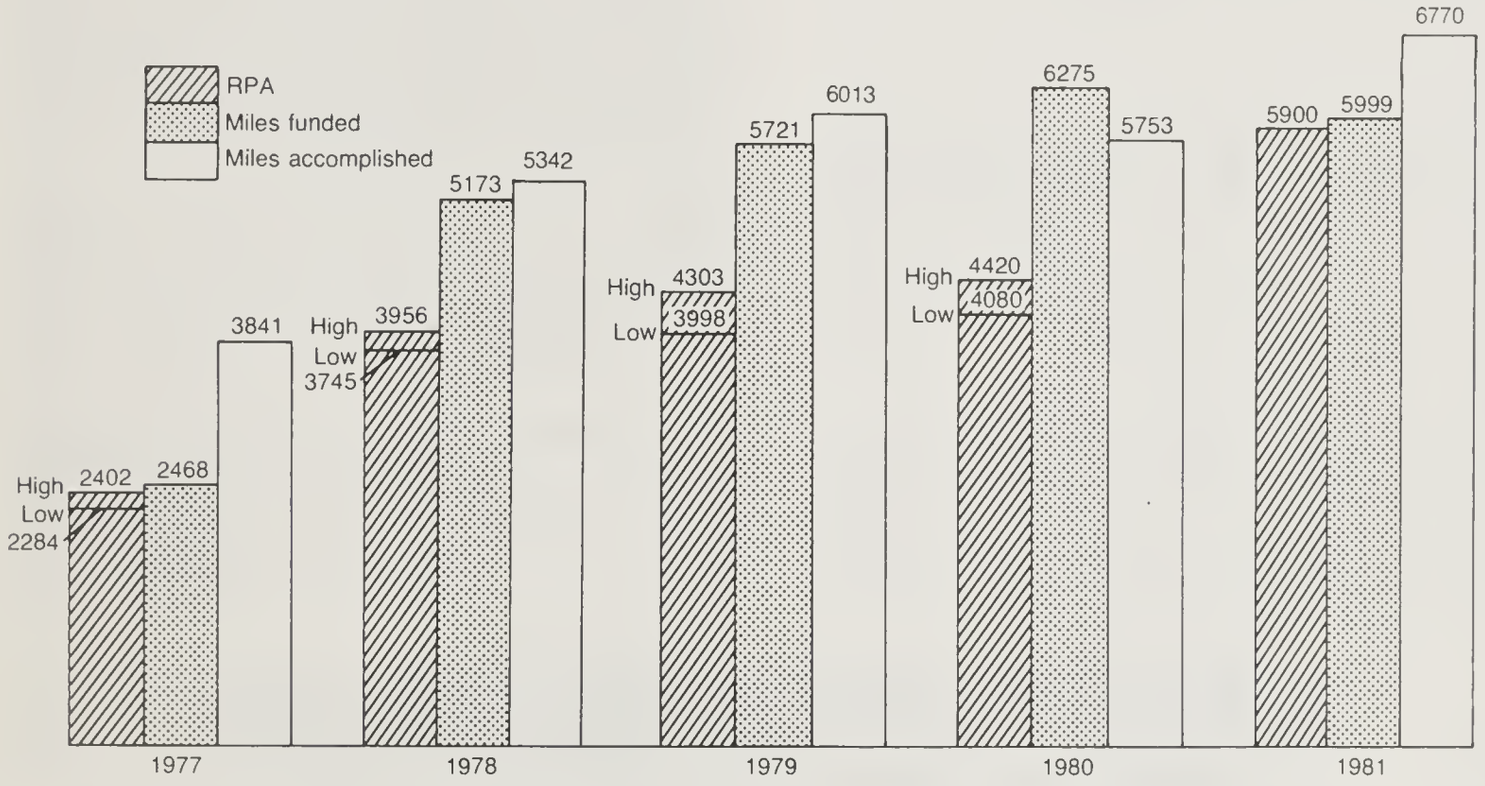
Minerals—Funding and Receipts*
(Million Dollars)



*See table 2, footnote 2

Figure 9.

Landline Location
(Miles)



Generally, receipts are collected by the Department of the Interior on NFS lands that have always been part of the public domain. The Forest Service collects receipts on NFS lands acquired through purchase, exchange, or donation.

As more land having high minerals potential is leased, the number of new lease applications will decrease, but operating plan administration will dramatically increase. These activities include protection of renewable resources, transportation planning, and reclamation planning.

Lands

The Forest Service acquisition and exchange program consolidates National Forest System (NFS) lands to reduce costs and to improve the management and production of all resources.

In 1981, 106,000 acres of private land were acquired in exchange for NFS lands; this was 133 percent of the goal (80,000 acres) and cost $7.6 million in administration costs such as appraisal and processing. These exchanges consolidated National Forest land, easing the task of controlling access and administering various programs such as livestock grazing. The consolidation also means a savings of about $5.2 million in landline location costs, since it reduced the Forest Service property lines by more than 1,000 miles. Property was acquired in the Oregon Dunes National Recreation Area, Alpine Lakes Wilderness, and other areas eligible for Land and Water Conservation Fund purchases. In these cases, exchanges were deemed a cost-effective alternative to purchase.

The RPA target for land purchase in 1981 was 50,000 acres. Surpassing that, the Forest Service purchased 102,500 acres under the Land and Water Conservation Fund at a cost of $51.3 million, 6,900 acres under the Weeks Act for about $3 million, and 1,200 acres under the Receipts and Sisk Acts at a cost of almost $789,000. In addition, twelve landowners donated 1,230 acres. The total purchase/donation program attained 102 percent of the funded target.

In 1981, $30.2 million were appropriated to locate about 6,000 miles of property boundaries. A total of 6,800 miles was located, 13 percent over the target (see Figure 9). Accomplishments exceeded targets in 1981, primarily because bidding for contracts was more competitive than anticipated, resulting in lower costs to the Forest Service.

Today, 20 percent of the total survey job is complete on NFS lands. Another 10 percent of the original surveying task has been eliminated because of land exchanges and purchases.

Protection

Fire

In southern California, above-average fire severity continued from the summer of 1980 through February 1981. Two weeks of major wildfires occurred in November 1980, destroying more than 400 homes. The most destructive fire of last year, the Panorama Fire, spanned National Forest System, State, and privately owned lands. Approximately $30 million of damage occurred in 17 days (see photo, page 31).

Below normal precipitation and a generally mild winter indicated an above average 1981 fire season nationwide. However, late spring and early summer snow and rain generally reversed this condition, except in California, Nevada, and Utah. Utah experienced one of its worst fire seasons on record. The following table compares nationwide 1981 fire statistics to the 5-year average.

Period	No. of Fires	Acres Burned
1977-81 ave.	12,668	199,729
1981	12,812	313,337

Following two studies completed in 1979 and 1980, an analytical system was set up for annually evaluating and, where possible, improving the efficiency of the fire management program. The system considers budgeted protection, expected emergency suppression costs, and expected net change in resource values to determine fire organization mix and budget level. An efficient program is specified by the lowest sum of cost plus net value change.

The analysis was useful in distributing the $174.4 million budget to Forest Service Regions in 1981. The intent was to achieve a more efficient fire management program than would have been possible using traditional methods. Although implementation of the system is still in transition, indications are that current budget requests and distributions resulting from the analysis do yield more efficient fire management programs.

Implementation continues for the National Interagency Incident Management System (NIIMS). NIIMS utilizes a command organization and terminology common to wildland firefighting agencies. This concept has proven to be highly cost effective in the FIRESCOPE Program, as described on page 35. Under this program, substantial cost savings result from the utilization of resources, regardless of agency jurisdiction.

Residential inspections were made this past year using volunteer groups from local communities. REACT, an informal organization of people who monitor the CB emergency channel, and 4-wheel-drive volunteer groups assisted in fire prevention efforts during periods of extreme hazard.

Programs to reduce the building up of inflammable material on the forest floor continued on those Forests with a history of large, costly, destructive fires. Emphasis is on the reduction of these hazardous fuel concentrations and maintaining forest vegetation in a healthy and vigorous condition.

The fuel management target for 1981 was exceeded by 8 percent. Over-achievement occurred primarily because of the mild winter and the use of tools such as the "Heli-torch," an airborne means of starting prescribed fires that is faster and more efficient than starts made on the ground.

Insects and Disease

The management and control of insects and disease on National Forest System land is the responsibility of the Forest Pest Management staff in State and Private Forestry. A discussion of their work in 1981 is on pages 29 through 31.

Law Enforcement

A major accomplishment in 1981 was issuing simplified regulations related to public use of the National Forests. These regulations, which became effective August 1, 1981, are more understandable and less burdensome to Forest users than previous ones, but still provide a satisfactory mechanism to protect National Forest resources, property, and Forest Service employees.

During 1981, an automated system to analyze violations of Federal law and regulations relating to National Forest property, resources, and employees was implemented. This system, which was developed over the past 4 years, also provides for the collection and display of National Forest related information from local and State law enforcement agencies. Another benefit is that the system will provide local managers with a way to detemine the effectiveness of crime prevention efforts on areas for which they are responsible.

One hundred fifteen Forest Service employees were graduated from the land management law enforcement course at the Federal Law Enforcement Training Center in Georgia. Graduates from this interagency curriculum have demonstrated a high degree of law enforcement knowledge. Also during 1981, an

interagency course on investigating the cause of wildland fires was developed.

The use of the National Forests to cultivate marijuana remained a concern in 1981. Increasing levels of coordination and cooperation between the Forest Service and local, State, and Federal law enforcement agencies made eradication efforts more effective than in prior years. A major concern is the risk to National Forest visitors, contractors, and Forest Service employees when they encounter those who are tending and/or guarding these valuable, illegal crops.

The Cooperative Law Enforcement Program is designed to compensate local law enforcement agencies for their help in protecting visitors and their personal property on the National Forests. This program is executed through cooperative aggreements, primarily with county sheriffs. Specifically, the Forest Service enforces Federal laws on National Forests; the cooperative program aids in the enforcement of State and local laws. The primary thrust in fiscal year 1981 was to insure that the funds available were expended at the most appropriate locations and at the proper times to insure maximum visitor protection at minimum expense.

During fiscal year 1981 funded agreements were in effect with 386 of 752 eligible jurisdictions. Through the development and application of analysis techniques, the location of and funding levels for agreements have been managed to secure a reasonable level of public protection.

The rapid expansion in visitor use of the National Forests has increased law enforcement responsibilities. Public education programs are one of the means by which these impacts have been mitigated.

RESOURCE MANAGEMENT

Timber

Timber on National Forest System lands is managed to produce a continuous supply of wood products to serve America's many demands. Logs for lumber and plywood, pulpwood for paper, fuelwood, posts and poles, Christmas trees--these are a few of the many products of our National Forest timber resource. The production of these materials requires a variety of activities such as thinning trees to promote growth, replanting cutover areas to assure

Figure 10. Logging tower for timber salvage, and snags of trees killed by Mount St. Helens eruption, against backdrop of Mount St. Helens crater, Gifford Pinchot National Forest, Washington.

new stands of trees, and pruning to increase lumber quality.

Supplies

National Forests annually provide from 21 to 23 percent of the total timber harvested in the United States. This compares with about 30 percent from forest industry lands and 50 percent from other private lands. This total harvest includes all timber products, such as sawtimber and pulpwood, for both softwoods and hardwoods. National Forests annually provide about 25 percent of all softwood sawtimber.

National Forests have the largest supply of standing sawtimber in the Nation, estimated at nearly 1.1 trillion board feet. This is 41 percent of the National total. Nonindustrial private forest lands contain about one-third of the total.

Demand in 1981

A key determinant of the demand for many timber products is construction activity and, most particularly, residential construction activity. Housing is the Nation's most important market for softwood lumber and plywood and a major end use for many other timber products such as hardwood plywood, particleboard, and insulation board. Not only is it a large direct consumer of wood, but it provides the stimulus for homeowner purchase of many manufactured goods, including household furniture, a major manufacturing user of hardwood lumber, plywood and veneer, hardboard, and particleboard.

New housing activity--which in most recent years has accounted for more than 40 percent of U.S. lumber and plywood consumption--declined fairly rapidly through fiscal year 1981. In September, new housing starts dropped to a seasonally adjusted annual rate of 918,000 units, nearly 45 percent below the rate in January. The September rate, smallest in more than 6½ years, also was the third lowest monthly level since 1959.

Nonresidential construction activity also declined in 1981. Preliminary data indicate the seasonally adjusted annual rate of expenditures (measured in 1977 dollars) in August was about $96.7 billion, 7.5 percent under the rate in January and 2 percent below expenditures in 1980. Although there has been a drop in the total, expenditures for private buildings, the most important wood-using segment of nonresidential construction, have increased. On the other hand, public construction expenditures, especially for highways and streets, have declined.

The seasonally adjusted index of industrial output--an important indicator of the demand for pallet lumber, container board, and some grades of paper--dropped in late 1981 after growing slowly through the first 7 months of the year.

Production of furniture and fixtures--an important market for hardwood lumber, plywood, and veneer for particleboard and hardboard--also increased through most of 1981 before dropping.

Offerings, Sales, and Harvest

In fiscal year 1981, the Forest Service prepared and offered for sale nearly 12.2 billion board feet of timber, exceeding the 11.9 billion board feet authorized by Congress. This is 300 million board feet more than the RPA Program goal for fiscal year 1981, but 200 million board feet lower than what was offered in 1980 (see Figure 11 and Table 16). A major share of this increase, 259 million board feet, was directly related to the increased salvage of sawtimber from the Mount St. Helens area, which was not included in the original 1981 program.

National Forest timber sales have remained high overall and especially in some parts of the Nation despite the current depressed economy. A total of 11.5 billion board feet of timber was sold (94 percent of offered volume) by the Forest Service in 1981 at a value of $1.8 billion. In comparison, sales in 1980 were 11.4 billion board feet (see Figure 12).

National Forests in the South and West Coast had the highest proportion of timber offerings sold, averaging better than 98 percent. Forests in the Northern and Intermountain areas showed the lowest proportion, averaging 82 percent. Figure 13 shows the volume of timber offered, sold and harvested in each Forest Service Region during 1981 (also see Table 17).

Harvest of National Forest timber in 1981 amounted to 8.0 billion board feet valued at $721 million 2/. The 1981 harvest was 4 percent lower than the 9.1 billion-board-foot-level of 1980 and 23 percent lower than in 1979.

This situation of a high level of sales combined with a low level of harvest may indicate that industry considers National Forest timber under contract a hedge against any rapid increases in consumer demand, a demand that could surpass supplies otherwise available. The continuing high level of road construction by timber purchasers in 1981 makes this volume available on short notice.

2/ 1981 harvest volume and value estimates are preliminary.

Figure 11.

Timber Offered
(Billion Board Feet)

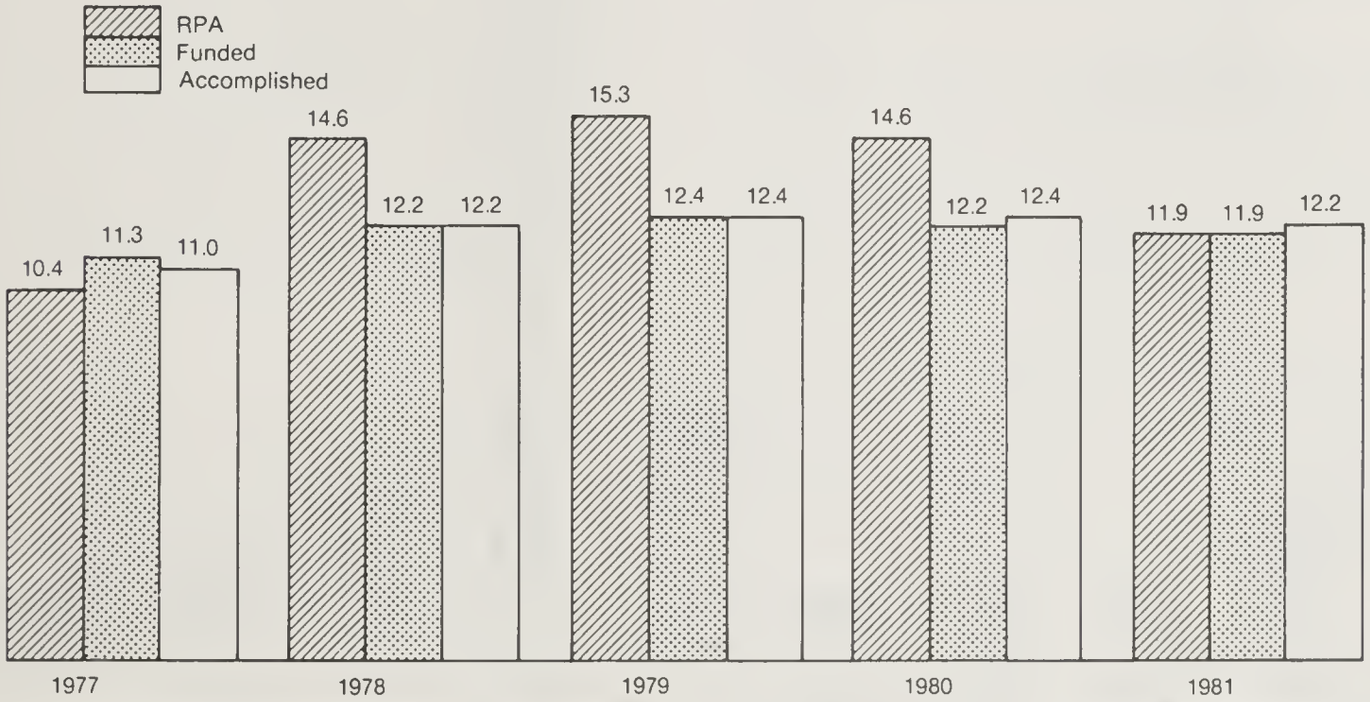
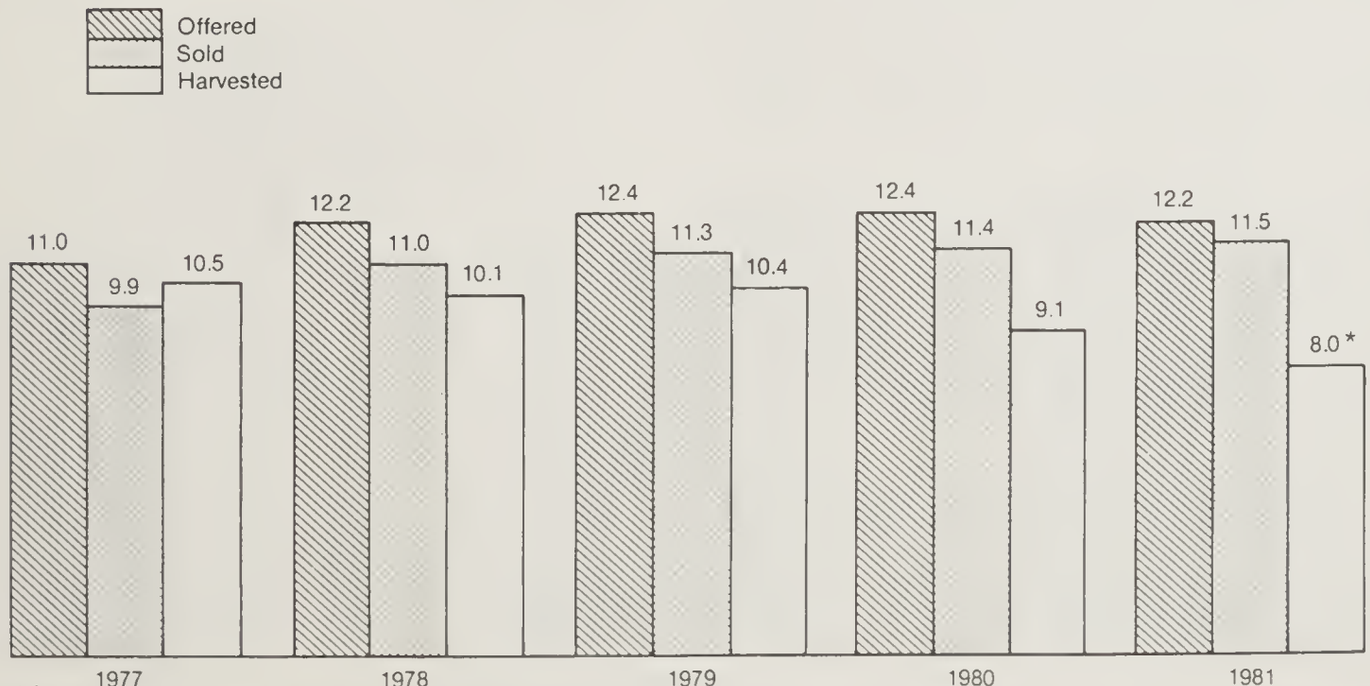


Figure 12.

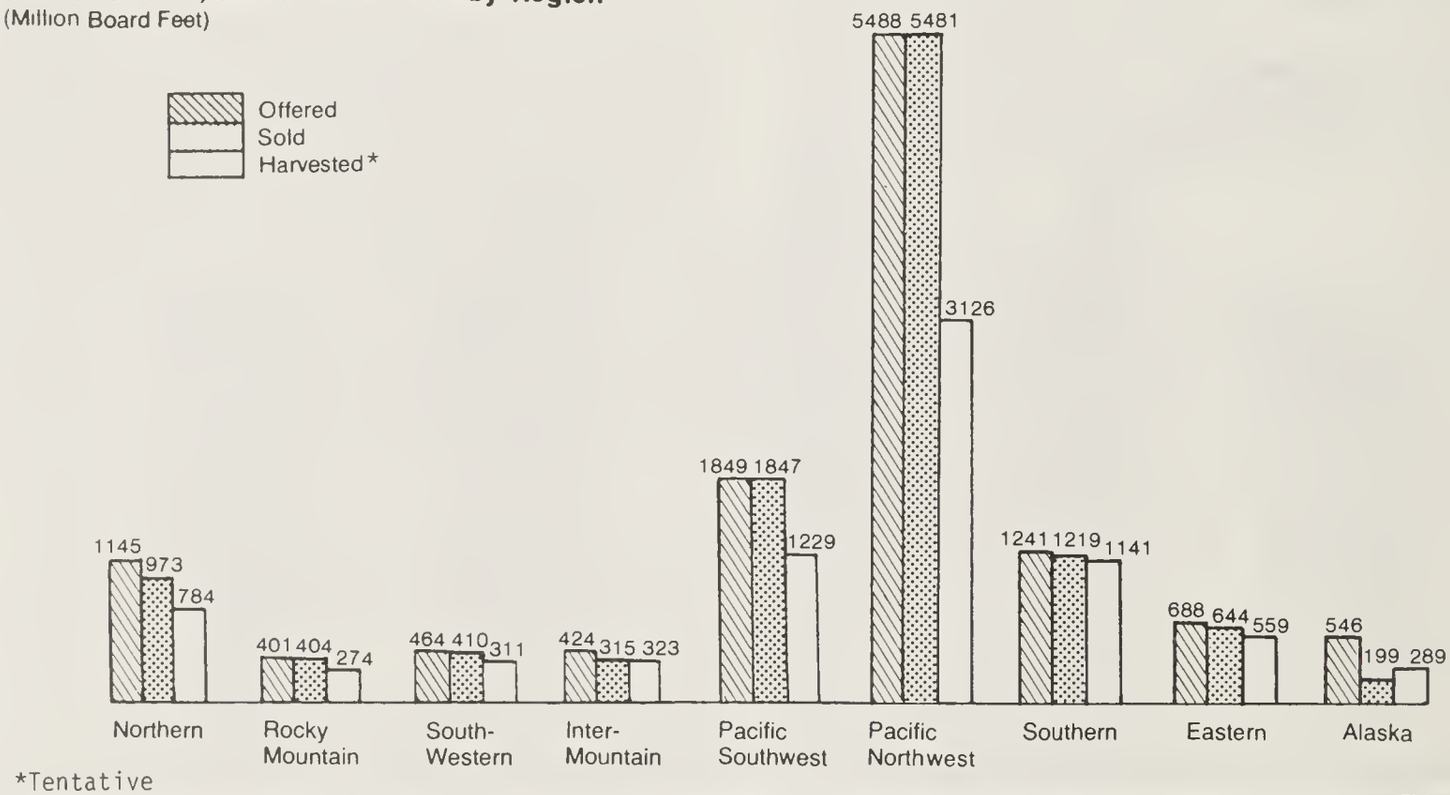
Timber Offered, Sold and Harvested
(Billion Board Feet)



*Tentative

Figure 13.

Timber Offered, Sold and Harvested by Region
(Million Board Feet)



*Tentative

Uncut Timber Under Contract

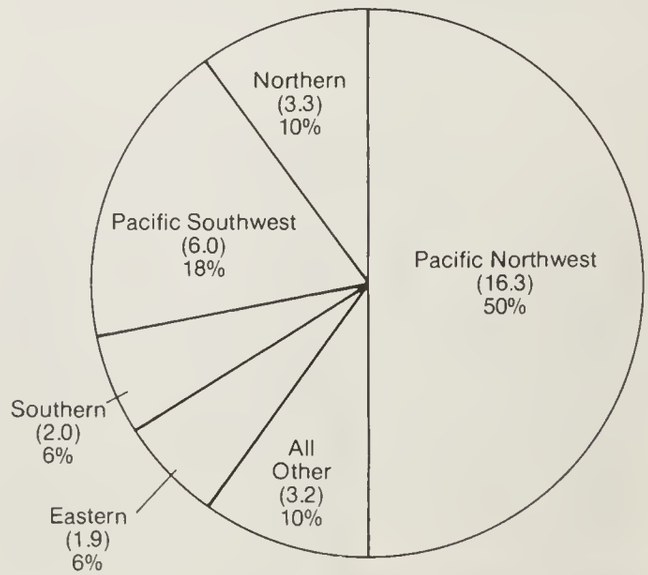
At the end of fiscal year 1981, 32.7 billion board feet of National Forest timber was sold but uncut (excluding long-term sales). Nearly half of it was located in the Pacific Northwest (see Figure 14 and Table 19). Given an annual sale program of about 11 billion board feet, this represents a 3-year backlog of uncut timber.

Since 1977 the volume of uncut timber has grown 22 percent. During this period industry began to build inventories of uncut timber to facilitate long-term scheduling and to guarantee a supply of raw material. The Forest Service also began offering timber under contracts that allowed more time for harvest. Since 1977, a large proportion of sales have allowed 3 to 5 years for harvest as compared to the previously typical 2 to 4 years.

Current lumber prices generally are lower than those estimated by timber purchasers when preparing bids at the time timber now under contract was auctioned. Consequently, many purchasers are now deferring harvest of timber until market conditions improve and their costs can be covered. This has contributed to the buildup of uncut volume under contract.

Figure 14.

Uncut Timber Volume Under Contract by Region—Fiscal Year 1981
(Billion Board Feet)



Total 1981—32.7 billion board feet

Historically, defaults have not been a major contributor to uncut volume. Because of the current market the rate of timber sale contract defaults may have increased in 1981. The Forest Service, in a study of the effects of the current market, has identified some changes in present timber sale policies, procedures, and contracts that could provide a more stable supply of National Forest timber. One measure taken by the Forest Service in October 1981 was to allow 2-year extensions for timber sale contracts that were about to expire. These extensions were granted to help contractors weather current market conditions until the economy improves in 1982 and beyond, and should moderate increases in the number of defaults.

Salvagable Timber

In fiscal year 1981, more than 1.1 billion board feet of salvagable timber were sold. About 56 percent of this amount was sold under the Special Salvage Sale Fund program. This program, authorized under the National Forest Management Act of 1976, includes authority to collect funds from salvage timber sale receipts to be used to cover the cost to the Forest Service of preparing and administering sales of insect infested, dead, damaged, or down timber, including necessary engineering work for roads.

Although the Mount St. Helens sawtimber salvage volume did provide about 200 million board feet, the majority of the sawtimber volume to be offered from this area will come in 1982 and after.

Receipts

As shown in Figure 15, 1981 receipts from timber purchasers totaled $947 million (also see Table 21). These receipts include returns to the

Treasury, deposits retained for use in work done by the Forest Service on timber sale areas, and the value of roads built by purchasers in lieu of cash payments. Timber receipts are the largest single source of revenue of any USDA program.

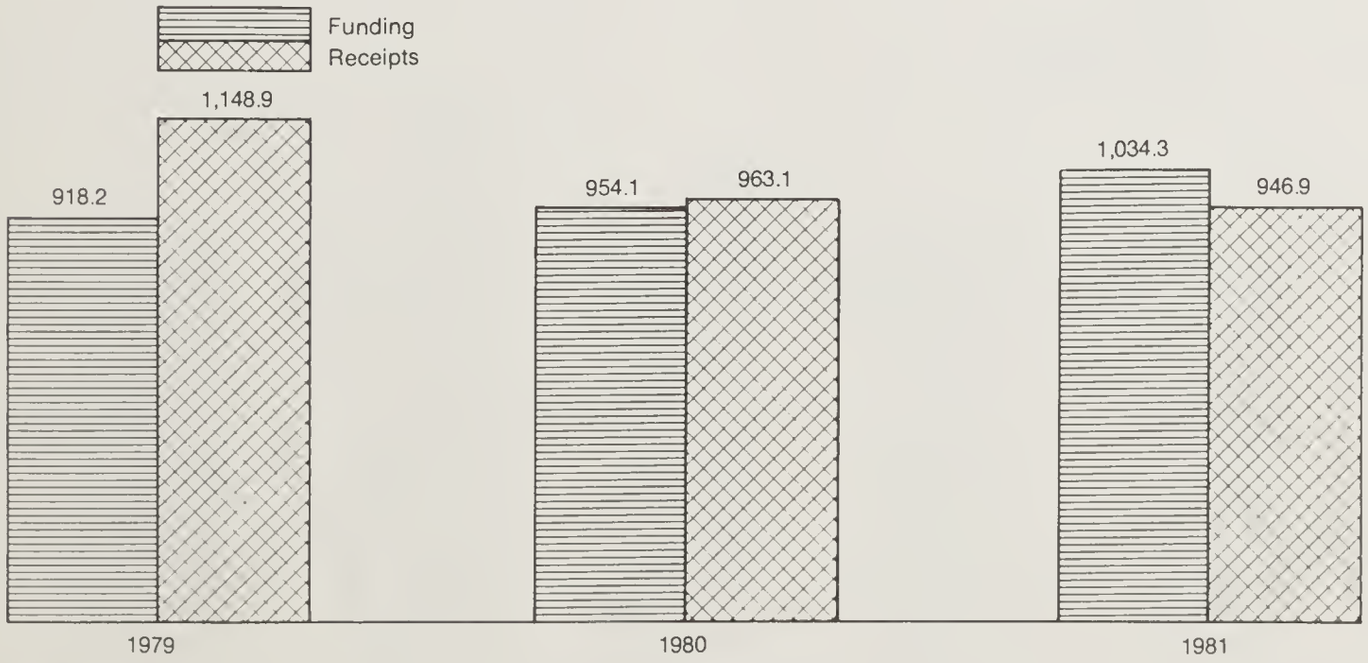
Stumpage rates, the value of timber before it is cut, continued to increase as they have for several years. The average national stumpage rate per thousand board feet for volume sold in nominal dollars was $121 in 1978, $173 in 1979, $181 in 1980, and $190 in 1981. It is anticipated that receipts to the Treasury will continue to rise 1 to 3 years from now as these volumes are harvested.

Timber Sales Below Cost

Section 6 of the Resources Planning Act requires the identification of a representative sample of advertised timber sales made below the estimated expenditures for such timber (see Table 22).

Figure 15.

Timber Funding and Receipts*
(Million Dollars)



*See Tables 20 and 21

The principal reasons for selling timber below cost were (1) to salvage timber, (2) to improve growth by meeting the silvicultural needs of individual stands of timber, or (3) to satisfy the needs of the community and the timber purchaser, who are dependent on National Forest timber sales.

Silvicultural Examination

Silvicutural examinations and site-specific prescriptions provide data on which to base management decisions concerning most timber sale activities, reforestation, and stand improvement programs. Both timber resource inventory and silvicultural examination results are essential in providing timber inventory data used in the land management planning process. In 1981, the examination program was funded to examine 6.7 million acres and work was actually completed on 7.4 million acres. This increase was because of work that was begun in fiscal year 1980, but not completed until 1981.

Reforestation and Timber Stand Improvement

Over 400,000 acres of National Forest lands were reforested in 1981. This amount represents about 20 percent of the total reforestation on all lands in the United States and 92 percent of the RPA Program for the National Forests. About 218,000 acres were reforested with appropriated funds and 205,000 with "KV" funds, money set aside from timber sales under the Knutson-Vandenberg Act (see Figure 16).

At the end of fiscal year 1981, about 1.0 million acres of National Forest land needed reforesting. The reforestation backlog, which is the reforestation need on July 1, 1975 that Congress mandated (NFMA) be accomplished by 1985, is 0.4 million acres.

The average cost per acre of reforestation ($294 in 1981) has jumped 28 percent since 1979. These cost increases, rising faster than the inflation rate, can be attributed to two major factors. First, as the reforestation backlog comes to completion, sites become progressively more difficult to plant. Second, site preparation is now limited to manual and mechnical methods, more expensive than chemical methods used in the past.

Timber Stand Improvement (TSI), noncommercial treatments applied to timber stands to improve growth or tree quality, was applied to about 396,000 acres. This is about 25 percent of the TSI accomplished on all lands in the United States. About 257,000 acres were treated with appropriated funds and 139,000 with KV funds (see Figure 17). The acreage treated is about 100,000 acres less than needed because of budget constraints. The

Figure 16.

Reforestation
(Thousand Acres)

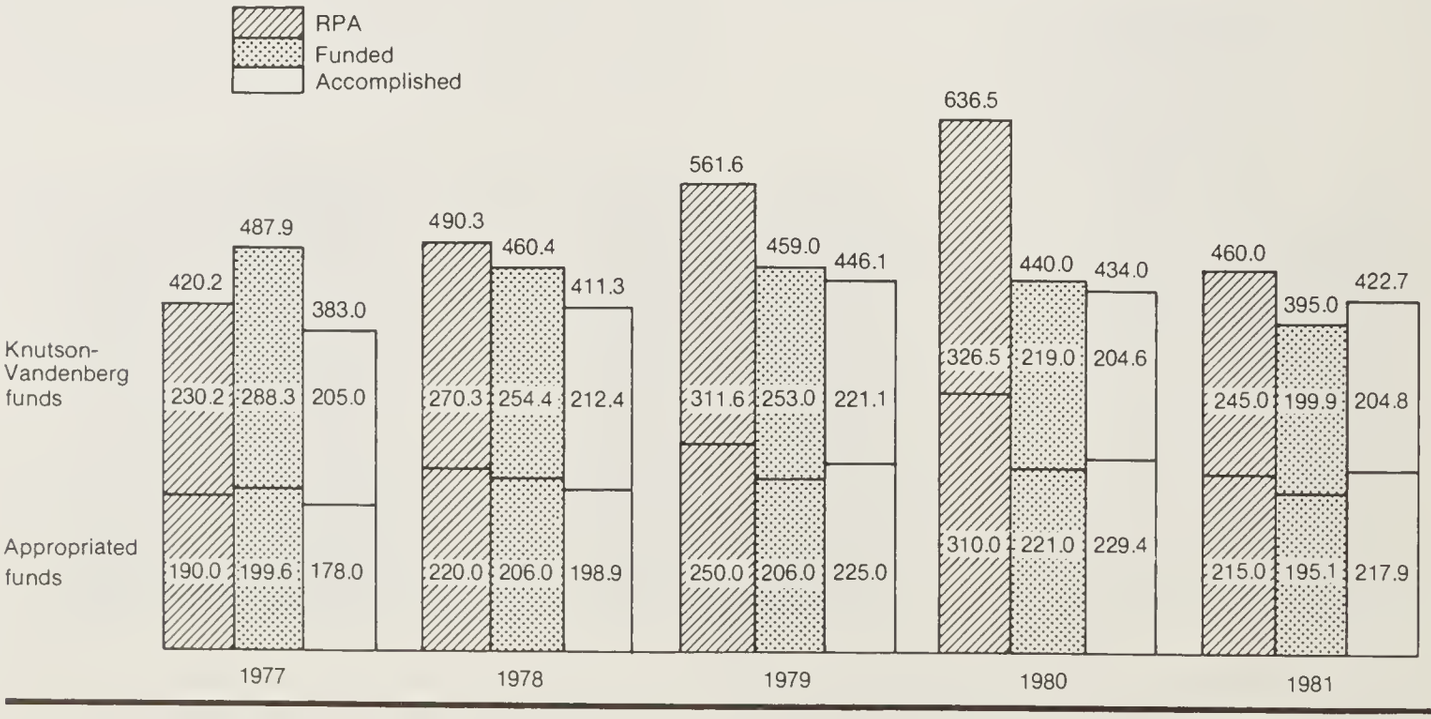
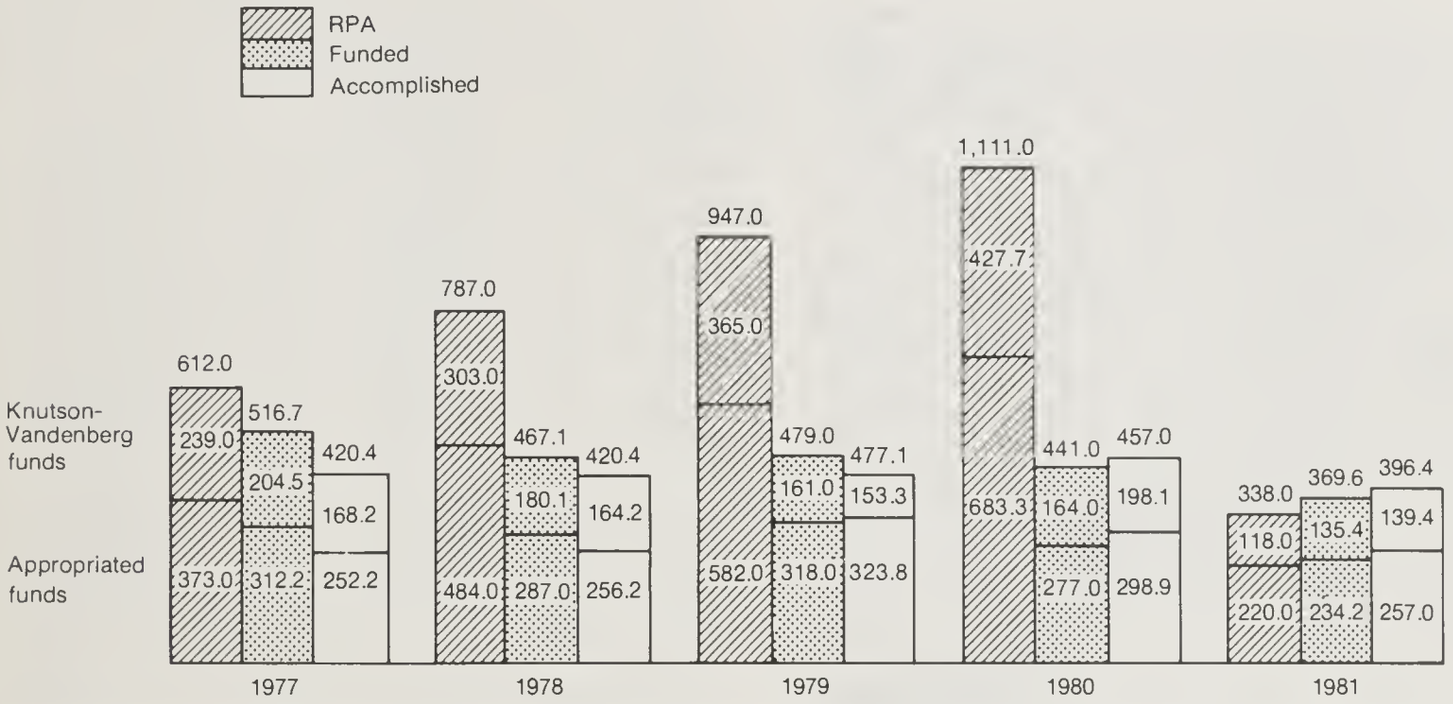


Figure 17.

Timber Stand Improvement
(Thousand Acres)



potential yield of timber is decreased when activities, such as removing defective trees or trees competing for limited nutrients, are not accomplished when needed.

As of October 1, 1981, an estimated 1.7 million acres needed timber stand improvement treatment to improve the growth condition of timber stands. Of this amount, 375,000 acres needed release and 1.3 million acres needed thinning. About 400,000 acres should be treated annually to meet RPA timber sale goals. It is estimated that TSI needs will be about 1.8 million acres by 1985. TSI is a continuing program. Each year 400,000 acres of new stands are created by reforestation and as these stands grow, many will need to be released from competing vegetation and/or pre-commercially thinned to maintain a healthy, vigorous stand of trees.

Increases in the cost per acre of timber stand improvement are mostly attributable to inflation. The cost in 1981 was $135 per acre.

Tables 23 through 30 show detailed information on reforestation-TSI needs and accomplishments.

Fuelwood

Interest continues to increase in the Forest Service free firewood program. This program allows people to obtain permits to cut (free of charge) timber for their personal use as firewood. Over 900,000 free-use permittees removed more than 4.2 million cords of fuelwood valued at about $4 million from National Forest System land. This is a 5-percent increase over the 1980 level and will provide the heating equivalent of about 11 million barrels of fuel oil. In August 1981, policy was adopted for charging a nominal fee for fuelwood for personal use. However, where there is a demonstrated surplus, free wood will still be available to most users. The fees collected will be returned to the Treasury.

Recreation and Wilderness

The goal of the Forest Service recreation program is to manage National Forest System lands so that quality recreation experiences are accessible to all Americans.

Figure 18. Skiers enjoying the Alta Ski Area, Wasatch National Forest, Utah.

Recreation Use

Outdoor recreation use on public lands has increased annually since records have been kept, and it appears use will continue to increase in the future. The 1980 RPA Program recommended increasing outdoor recreation opportunities by means of programs that emphasize experiencing nature. By 2030, it is projected that recreation use with this emphasis would nearly double the 1978 level of 210 million visitor-days.

National Forest recreation opportunities vary from camping in constructed facilities to backpacking in primitive settings (Tables 31 through 36).

In fiscal year 1981, 235.7 million recreation visitor-days (RVD's) were recorded on National Forest System lands. This total is 4 percent higher than the RPA use estimate (see Figure 19). Dispersed recreation use, which includes such activities as hiking, snowmobiling, cross-country skiing, hunting, and fishing, increased 2 percent over last year.

Recreation use on developed sites dropped slightly this past year, although overall, it has increased 15 percent in the last 5 years. The drop can be traced to the reduction in the number of downhill skiers. The 84.9 million visitor-days use of developed sites in 1981 exceeded the RPA Program estimates by 3.5 percent.

A system that organizes recreation use into six broad classifications of experiences has been introduced to aid in recreation planning and management. This system, called the Recreation Opportunity Spectrum (ROS), describes recreation experiences by means of categories ranging from primitive to urban. ROS will be used in the 1985 RPA Program, replacing the previous categories of dispersed and developed recreation. Benefits expected from the new system include more accurately defined recreation use and costs.

While protection of visitors and their property is principally the responsiblity of the States and local jurisdictions, the presence of the Forest Service, while providing information and doing other recreation-related tasks has been demonstrated to play an important role in visitor protection. The law enforcement program was discussed on page 10.

Receipts

Since fiscal year 1977, receipts from recreation use have increased more than 66 percent. Receipts in 1981 increased 6 percent from 1980, and totaled $19.4 million (see Figure 20).

In line with the goal in the 1980 RPA Program, the Forest Service is increasing fees to bring them more in line with costs and to reduce competition with the private sector. The fees are based on comparable private-sector prices for the same services found in the local area. The number of 2-dollar sites decreased from 1,100 to 571, while 4-dollar sites increased from 65 to 234, and 5-dollar sites increased from 12 to 95.

Because of the higher fees, receipts from recreation users increased 24 percent. Receipts from recreation special use permits decreased by 8 percent. This drop in special use revenue was caused mainly by a decrease in the number of downhill skiers, primarily because of poor snow conditions. Receipts from ski areas typically constitute 75 percent of all special use revenues.

Trails

Trails are essential for managing public use--they permit the distribution of forest users throughout

Figure 19.

Recreation Use
(Million Recreation Visitor Days)

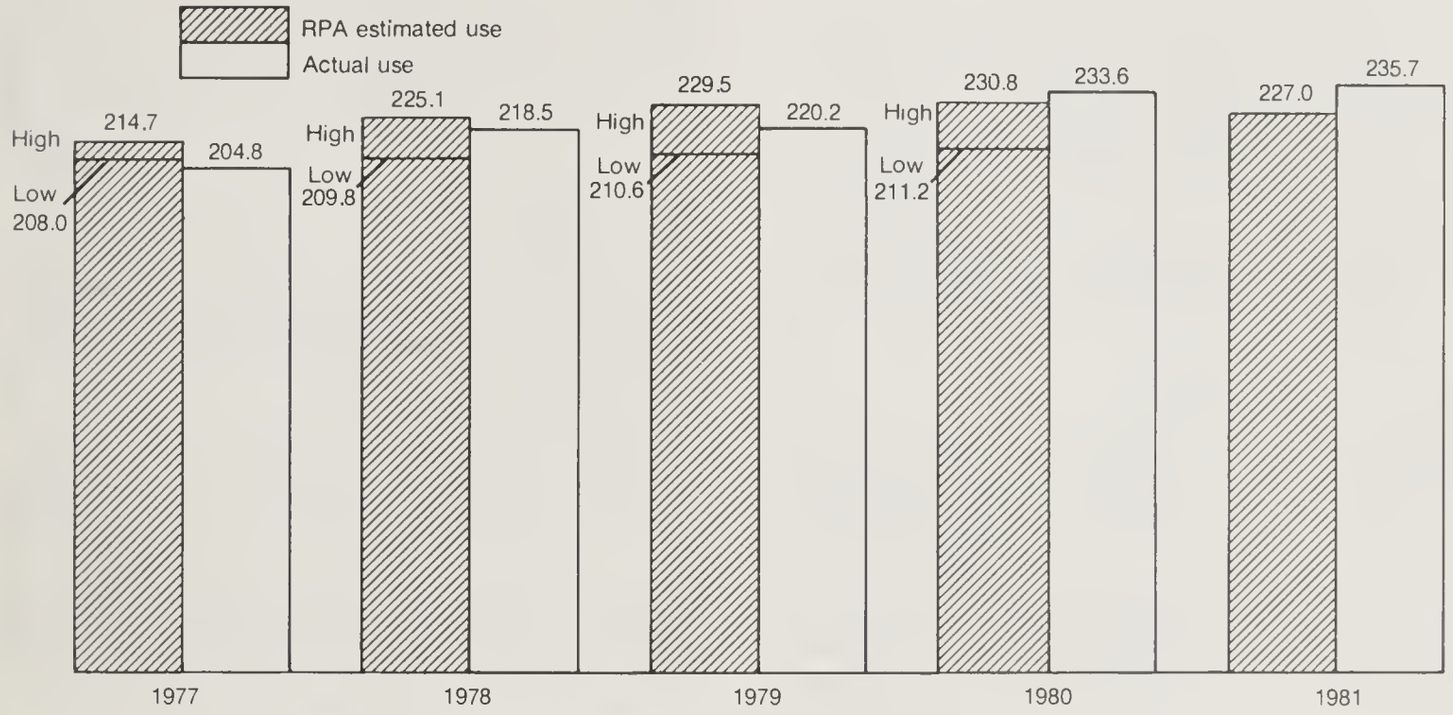
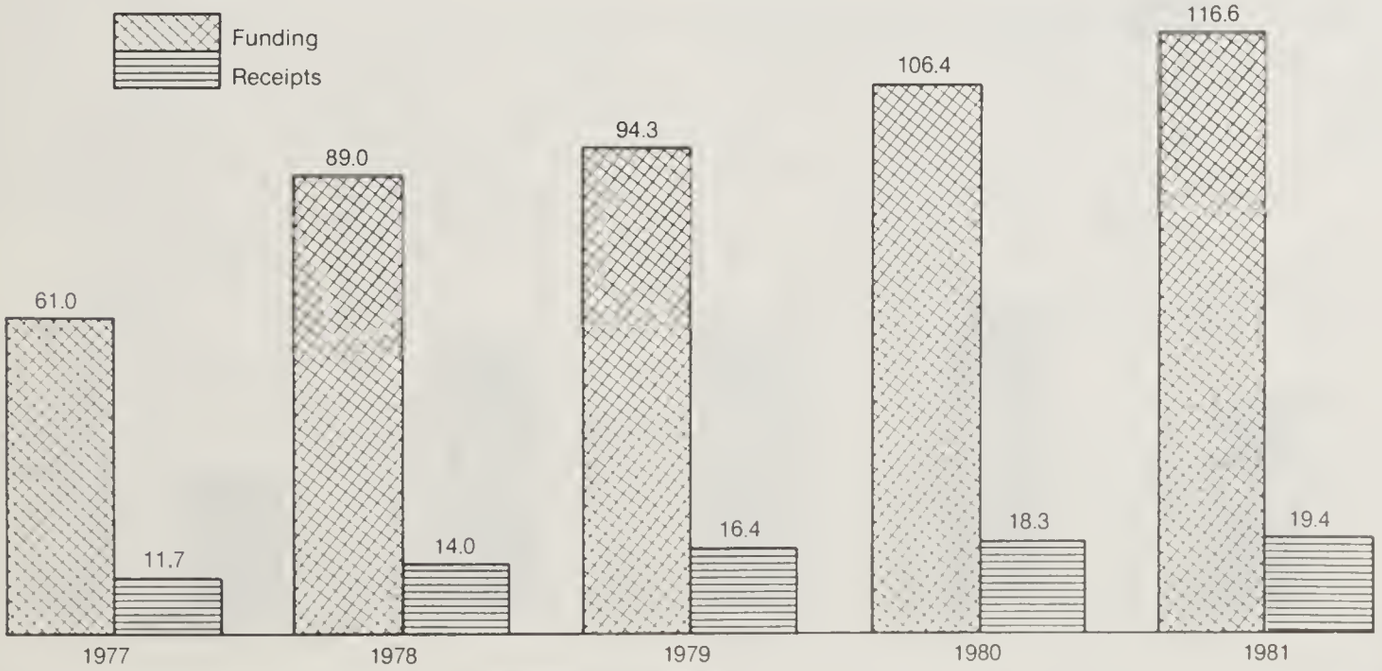


Figure 20.

Recreation—Funding and Receipts
(Million Dollars)



the forest, whether they be on foot, horseback, or trail bike. The objective of a trail system is to make available a spectrum of recreation opportunities commensurate with land capability and public need.

The 1981 RPA target for trail construction or reconstruction was 515 miles. Fiscal year 1981 appropriations funded 217.5 miles, and 313.1 miles were built or rebuilt--44 percent more than the funded target. The extensive use of volunteers made this accomplishment possible, especially in the Eastern Region. In addition to work funded by Forest Service appropriations, 415 miles of trail were constructed/reconstructed through Human Resource Programs (see page 49 for a description of those programs).

Recreation Site Management

In 1981 developed site capacity open for public use dropped 17 percent from 1980 levels (see Figure 21). Of those open, 45 percent were managed with full services, including furnishing drinking water and picking up trash. This compares with 65 percent in 1980. The remaining sites that were open were managed with reduced service, which might include asking Forest visitors to "pack their trash," was the most effective way to keep recreation sites open.

From examining Figure 21 it might be concluded that the management and open capacity of developed recreation sites do not affect recreation use. Recreation site management does influence recreation use, but it is not the most important factor. Population characteristics, economic conditions, and location play major roles in determining use. Because of this, reducing service at a developed site does not result in a one-to-one reduction in use, but it may affect the quality of the experience and allow resource and facility damage. Only when a site is closed is use fully eliminated.

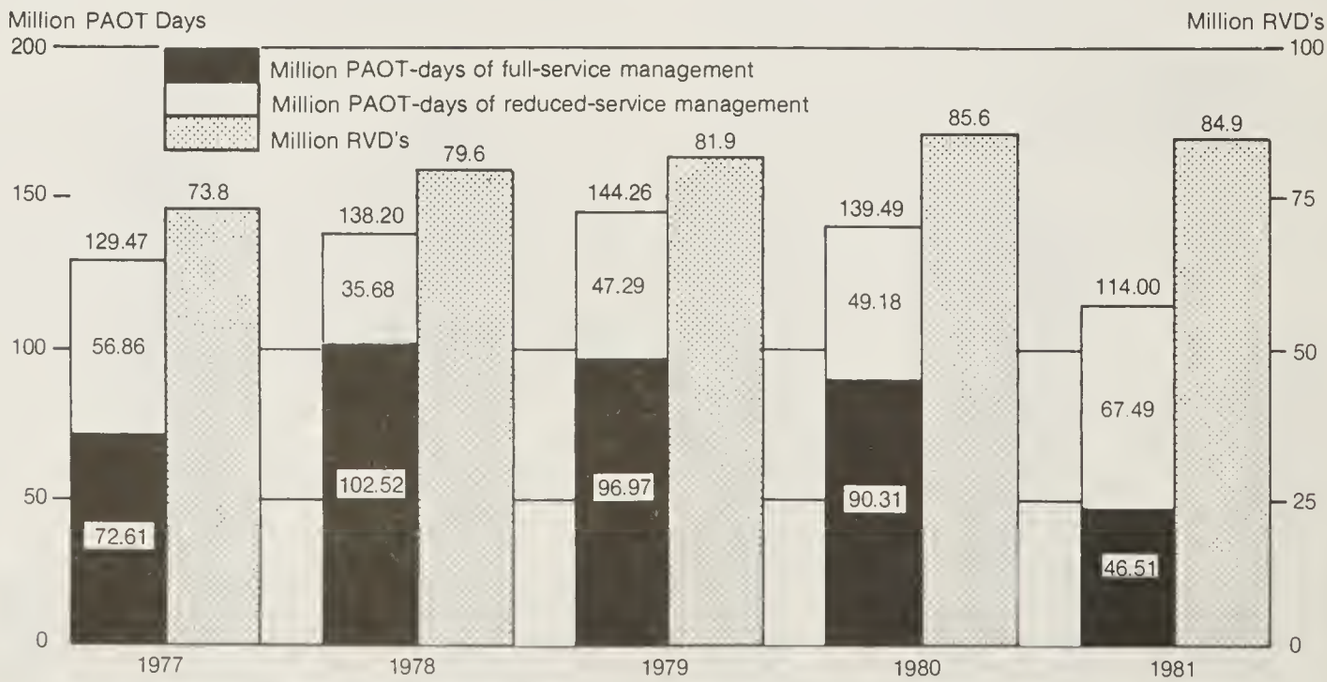
The use shown in Figure 21 includes all developed use, not just use occurring on those sites shown as having full- or reduced-service management.

Recreation Site Construction

Nearly 70 percent of the 1981 construction funds were used to rehabilitate water and sanitation facilities at existing recreation sites. This was done to protect visitor health and safety, as well as the natural resources of the site. The remaining funds were used for such things as repairing broken tables and signs, surfacing parking lots, and revegetating worn areas.

Figure 21.

Recreation—Open Capacity (Million PAOT-Days) vs. Developed Use (Million RVD's)



*PAOT days = Persons At-One-Time Days; RVD's = Recreation Visitor Days (12 hours of use)

Cultural Resources

Under provisions of the Historic Preservation Act of 1966, 38 areas that were identified as having special cultural significance were listed on the National Register of Historic Places. Sixty-eight others are eligible for listing. These areas are part of 4,500 cultural properties identified to date on National Forest System lands.

Wilderness

During fiscal year 1981, Congress considered areas in several States for wilderness designation. In December 1980, legislation was enacted that added about 7,551,000 National Forest acres to the National Wilderness Preservation System (NWPS). Forty-six new Wildernesses were designated, additions were made to 10 existing units, and an adjustment was made to one. Most of the acreage was designated in Alaska on the Tongass National Forest. Other States involved were Colorado, Louisiana, Missouri, New Mexico, South Carolina, and South Dakota (see Table 38).

The Forest Service, at the end of fiscal year 1981, administered 25.1 million acres of wilderness representing 13 percent of the National Forest System lands. The Forest Service now manages about 32 percent of the entire National Wilderness Preservation System; 84 percent of this portion is located in the 48 contiguous States. Wildernesses on NFS lands received about 11.4 million visitor-days in 1981, a 16 percent increase from fiscal year 1980.

Wild and Scenic Rivers

No rivers were designated by Congress during the fiscal year. Five rivers in northern California were added to the National Wild and Scenic Rivers System by designation of the Secretary of the Interior under Section 2(a) (ii) of the Wild and Scenic Rivers Act (see Table 39). This action affected about 500 miles of river located on NFS land within 4 National Forests. The rivers were:

American
Eel
Klamath
Smith
Trinity

Studies on nine rivers were transmitted from the Department of Agriculture to the Office of Management and Budget during fiscal year 1981. Those rivers were:

Moyie (ID)
Los Pinos (CO)
Conejos (CO)
Elk (CO)
Clarks Fork (WY)
San Francisco (AZ)
Salt (AZ)
Verde (AZ)
Snake (ID, OR, & WA)

Wildlife and Fish

Fish and Wildlife Resource Use

As private land continues to be converted to agricultural, industrial, and urban uses, the National Forest will become increasingly more important for the survival of many wildlife species and for wildlife- and fish-oriented recreation. The wildlife and fish resource on National Forest System lands accounted for 88.9 million user days for hunters, fishermen, bird watchers, and others.

A close working relationship with State wildlife and fish agencies is maintained since States have the responsibility to manage animal populations, while the Forest Service manages the habitat.

Wildlife and fish programs on National Forest System lands are guided by the RPA Program and comprehensive plans developed in cooperation with the States. Goals in the plans are based on public demand, the required habitat improvements, costs, and net benefits.

Fish and Wildlife Habitat Improvement

Habitat improvements that either increase the capability of the land to support fish and wildlife or mitigate habitat losses from other resource programs were accomplished on 483,000 acres. They included 390,000 acres for wildlife, 17,000 acres for fish, and 76,000 acres for threatened and endangered species (see Figure 22). These improvements exceeded the funded target by 12 percent.

Wildlife habitat improvements have been largely oriented toward species of high public demand such as deer and small game. Fisheries emphasis was on anadromous fish, such as salmon and steelhead; improvement of habitat in California, Washington, Oregon, Idaho, and Alaska accounted for a major share of the accomplishments.

Threatened and Endangered Species

The Forest Service carried out management programs for more than 90 Federally listed threatened and endangered plant and animal species. Results of these efforts included:

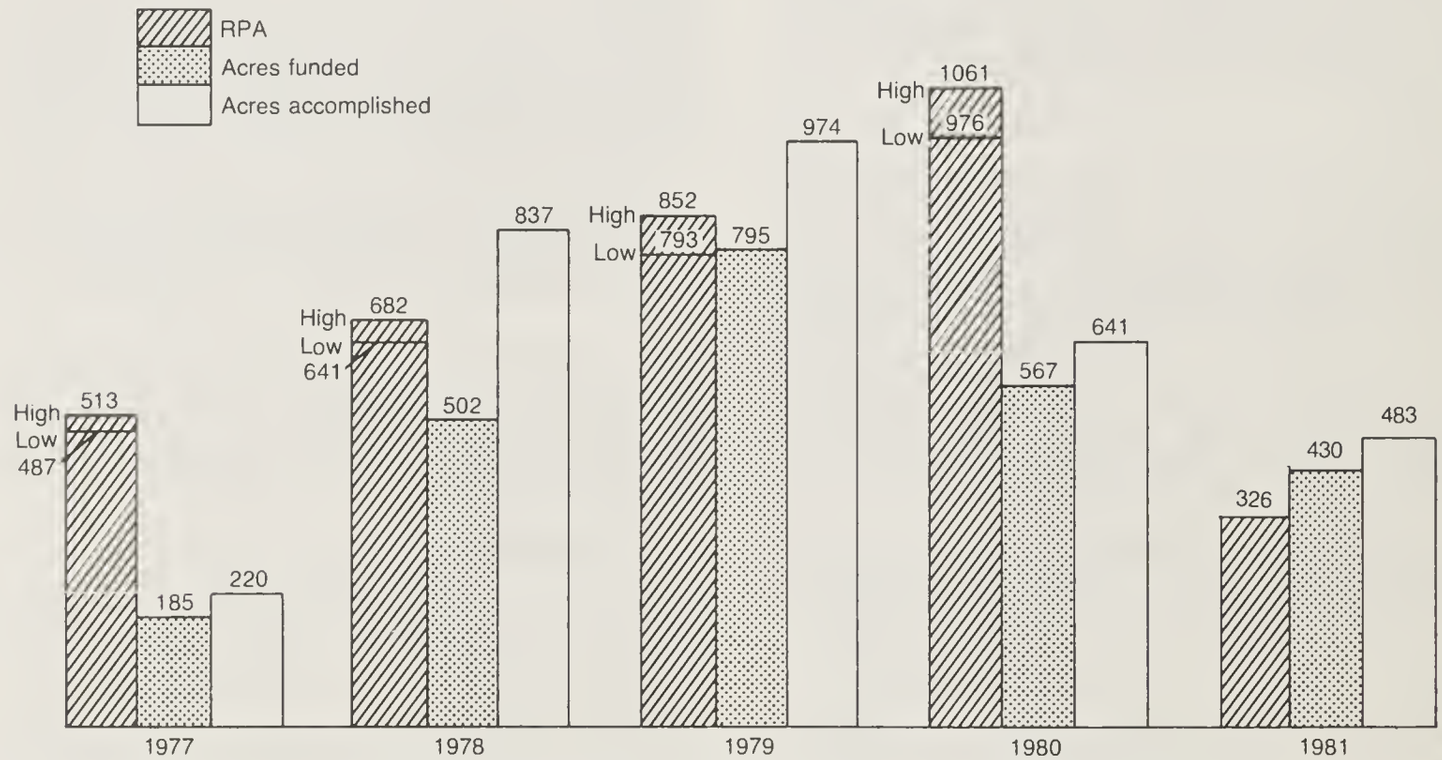
--Significant increases in populations of peregrine falcons because of captive breeding programs.

--Stabilized or increased populations of bald eagles on most National Forests due to proper management of existing nesting and wintering sites and retention of suitable habitat.

--1,000 acres of improved habitat for the Kirtland's warbler, an endangered songbird which nests only in young jack pine stands.

Figure 22.

Wildlife and Fish Habitat Improvement
(Thousand Acres)*



* Acres funded and acres accomplished include Knutson-Vandenberg and support acres, RPA acres do not.

Support of Other Resource Programs

The needs of fish and wildlife are considered when planning the use of other forest resources.

For example, activities such as timber sales and mineral development are planned to minimize adverse effects on wildlife and fish habitat and, in many cases, result in enhancing the habitat. An estimated 40 percent of the reported wildlife habitat improvement occurred as a result of providing such support to timber management.

Range

Grazing

Most National Forest System grazing is seasonal and complements year-round cattle and sheep production enterprises. The National Forest System provides forage during one or more seasons of the year, often when feed on privately owned land is not available.

In fiscal year 1981, the range program was funded at $43.0 million with a goal of permitting 9.8 million animal unit months (AUM's) 3/ of livestock use. Because of inclement weather, poor growing seasons, permittees personal reasons, and other factors, actual use was 8.8 million AUM's (see Figure 23). In addition to livestock grazing, the range program provided 32,000 AUM's of grazing for wild horses and burros. In order to balance range use with ecosystem stability, 278 wild horses and burros were captured and offered to individuals for adoption.

3/ AUM's defined in Table 44, footnote 4.

The number of allotments grazed in 1981 was 10,871, a slight increase from 1980. Improved management was continued on about 6,700 allotments and started on nearly 700.

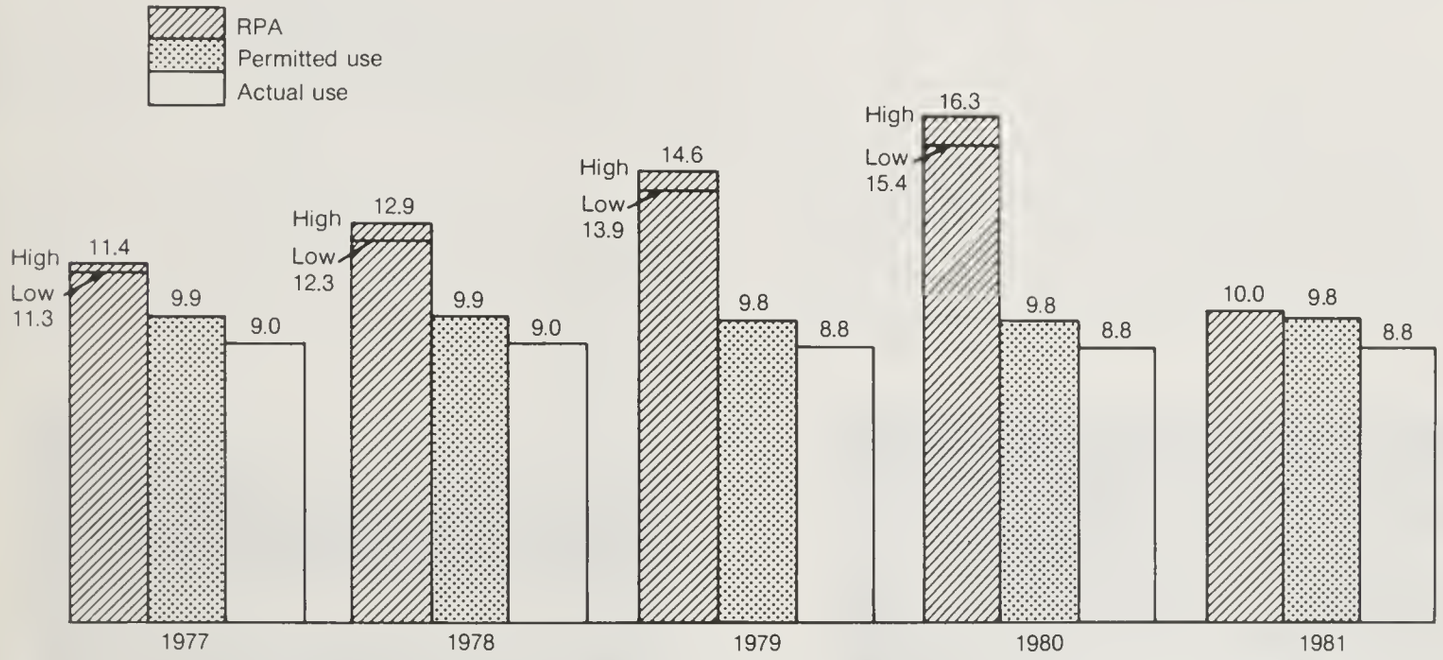
Receipts

In 1981, receipts from grazing fees were $14.9 million. This is a 6 percent decrease from 1980 grazing receipts.

Grazing receipts were lower in 1981 because the prices farmers and ranchers received for beef declined while the costs of livestock production increased. These factors play a prominent role in determining grazing fees under the formula established by Congress in the Public Rangelands Improvement Act of 1978.

Figure 23.

Grazing Use
(Million Animal Unit Months)



Other Activities

In cooperation with the permittees, forage improvement and rehabilitation measures were taken on 150,900 acres of National Forest System ranges in unsatisfactory condition. In addition, water developments and fences were built to improve management on 2,265,000 acres.

In cooperation with local weed control districts, 20,700 acres of National Forest System lands were treated to control noxious farm weeds and prevent the infestation of private agricultural lands. Herbicides used in these control measures are shown in Table 51.

The Public Rangelands Improvement Act of 1978 authorized the development of an experimental program which offers incentives for holders of grazing permits to improve range conditions. Three joint experimental stewardship areas are chartered-- the Challis in Idaho, the East Pioneer in Montana, and the Modoc-Washoe in California and Nevada. The Stewardship Steering Committees for the areas are composed of ranchers, Federal and State agency representatives, and other interested persons. Benefits from the program have been increased forage for domestic livestock, improved habitat for wildlife, and improved watershed conditions for the protection of soil and water quality.

The combination of warm season grasses and cool season grasses on the same grazing allotment has produced benefits in the Eastern Region. Planting the two types has resulted in increased forage, since they grow best during different seasons. This means more red meat production on the same amount of land. This practice is being used on some non-Federal lands as well.

Soil and Water

Management

The soil and water program in 1981 emphasized the maintenance of soil productivity and water quality. Activities included: (1) gathering and interpreting soil and water data needed for developing management plans, (2) devising practices to prevent soil erosion and stream sedimentation resulting from activities that disturb the land, (3) installing and operating instruments that measure changes in water quality and quantity to determine the effectiveness of current practices, (4) quantifying water needs and securing water rights, and (5) maintaining soil and water improvement projects.

Specific activities in 1981 included working with timber sale planners and road locators on sales totaling 11.5 billion board feet of timber. Many

of the harvesting activities were on more remote sites and less stable soils than in previous years, necessitating more specialist support. Soil and water specialists also worked with other resource specialists to approve more than three times as many operating plans for minerals and energy development in 1981 as in 1977.

Soil and Water Resource Improvement

Objectives for the improvement of soil and water are: to correct situations where sedimentation is degrading water quality, to restore or enhance soil productivity, and to maintain or restore favorable conditions of water flow such as in timing of water release or quantity of water yield. First priority is to protect water quality and maintain soil productivity.

Figure 24. Actively eroding gully, Oconee National Forest, Georgia.

The 1980 RPA Program shows that 8,000 acres of watershed in declining condition should be targeted for treatment each year. In fiscal year 1981, resource improvements were installed on 4,450 acres, 23 percent over the amount funded. Resource improvements included water drainage control, erosion reduction, gully control, and stabilization of streambanks and abandoned roads. The 1981 funded target of 3,600 acres was 45 percent of that given in the RPA Program.

Figures 24 and 25 show the effects of soil improvement measures such as those accomplished this past year. The sharp decline in acres treated in 1981 from previous years is shown in Figure 26. This illustrates the need for technical support to other resource programs.

Another aspect of soil and water improvement work is the emergency treatment of burned areas to reduce flooding potential, soil loss, and water quality degradation. This type of treatment was applied to 34,000 acres in 1981.

Inventories

Information provided by soil and water inventories helps insure better coordination of resource uses so that soil productivity and water quality are protected.

Soil surveys include determination of soil productivity and reforestation potentials, erosion and stability-problem areas, and effects of soil and vegetation on water yield and water quality. In 1981, soils inventories were made on 8.7 million acres. Figure 27 shows acres inventoried over the past 3 years.

Figure 25. Same location after treatment showing land restored to productive capability.

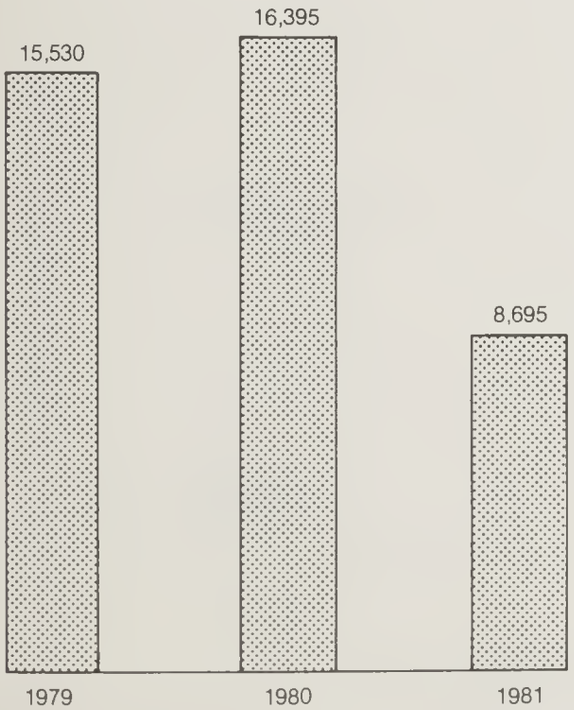
Water resource surveys provide information on flooding history and potential, timing and amounts of water flows, water quality, location and amount of watershed in declining condition, and the kinds of soil and water improvements needed to treat those areas.

Figure 26.

Soil and Water Resource Improvement
(Acres)

Figure 27.

Soil Inventories
(Thousand Acres)



FACILITIES

Roads

Transportation is a primary element in the development, management, protection, and enjoyment of National Forest System resources.

In 1981 the transportation program was directed to areas where, on a short-term basis, limited investments are needed to continue current programs and use. The transportation system was developed using the following:

Timber as the Principal Resource --the construction or reconstruction of many roads to manage resources other than timber was deferred during 1981.

High Timber Volume per Acre --purchaser credit (roads built in exchange for some or all of the timber purchased) was used to construct or reconstruct the roads needed for timber sales, freeing appropriated funds for engineering support of these and other roads.

Limited Capital Investment Funding --emphasis was placed on the construction of facilities to harvest timber in the short term (1-3 years).

In 1981, 1,200 miles of road were constructed or reconstructed with appropriated funds on National Forest System lands. The funded target of 621 miles was exceeded by 96 percent, generally due to lower bids and revised road standards. One hundred and twenty-one bridges were also constructed with this money. Nearly half of all these roads were located in the Eastern or Southern Region. More roads (200 miles) were built or rebuilt in Montana than any other State. (see Table 46)

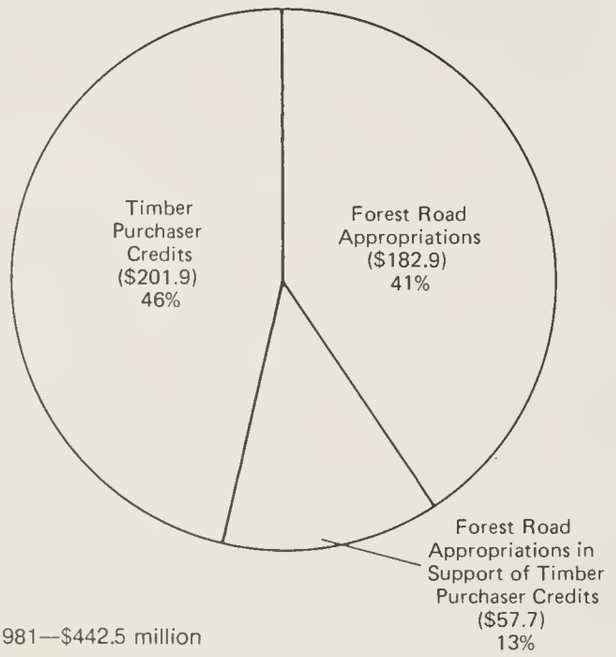
The target of 11,200 miles of roads to be constructed by timber purchasers was not met, largely because many small businesses elected to have the Forest Service construct the roads. Timber purchasers did construct 7,300 miles of road and 84 bridges and returned an additional 1,500 miles to the Forest Service for construction under the purchaser option (see Tables 46 and 47). In 1980, timber purchasers constructed 8,000 miles of road and also returned 1,500 miles to the Forest Service for construction.

One-third of all purchaser road activity (2,900 miles) occurred in the Pacific Northwest. Although much of the road activity on NFS land was in this Region, the miles of roads built or rebuilt were down 16 percent from anticipated levels.

Figure 28 shows the relationship between road funds from appropriations and timber purchaser credit.

Figure 28.

Road Construction/Reconstruction Funding
(Million Dollars)



Total 1981—$442.5 million

Thirteen percent of total road funds (24 percent of appropriations) was used in direct support of timber purchaser construction and reconstruction.

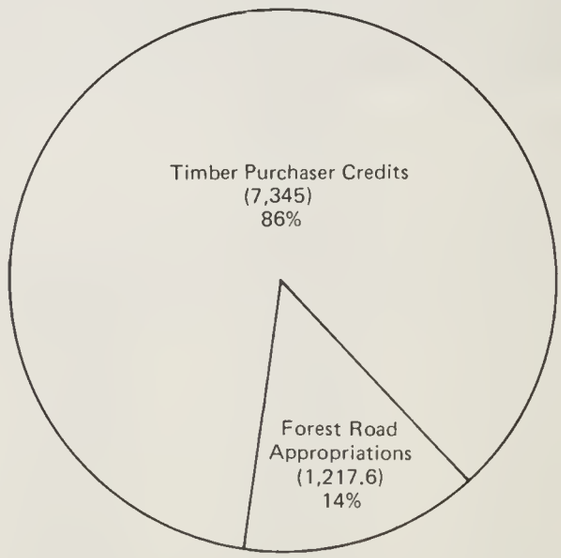
Figure 29 shows the relationship between miles constructed/reconstructed with appropriated funds and the miles constructed/reconstructed with timber purchaser credits. Neither Figure 28 nor 29 includes roads built by the Forest Service under election by small businesses.

About 86 percent of all road construction/reconstruction is financed with 46 percent of total road funds. Roads constructed or reconstructed from timber purchaser credit funds do not include engineering support, such as design, survey, and contract inspection work; this is significant when comparing cost per mile of roads built by different funds. In 1981, each dollar of purchaser credit required 28.6 cents of engineering support.

Over 278,000 miles of roads on NFS land were maintained in fiscal year 1981. The Forest Service identifies five levels of maintenance based on the type and frequency of care a road is given. In 1981, 92 percent were treated at the three lowest levels, while the remaining 8 percent, or 21,000 miles, were treated at the two highest levels.

Figure 29.

Road Construction/Reconstruction Miles by Funding Source
(Miles)



Total 1981—8,562.6 miles

Other Programs

Other 1981 accomplishments concerning facilities, such as the energy conservation retrofit program, are discussed on page 51.

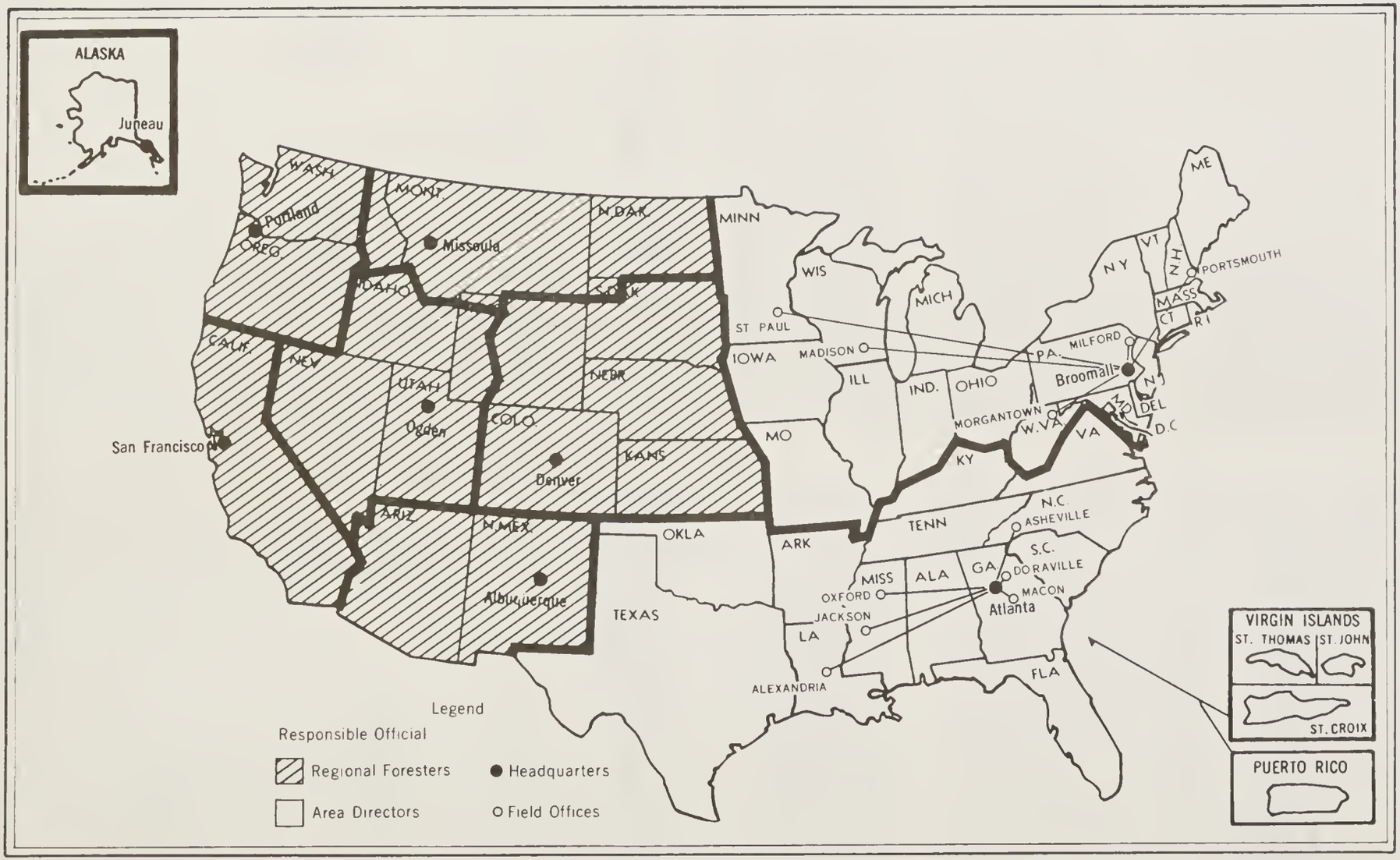


Figure 30. State and Private Forestry Regions (West) and Areas (East) of the Forest Service.

INTRODUCTION

Improving the production of timber and other resources and protecting these resources from insects, diseases, and fire on private and State lands are the principal goals of State and Private Forestry programs.

Through these programs private landowners, as well as State and local governments, can receive assistance--both financial and technical--for the management, planning, and protection of their forests.

Administration of the programs is the responsibility of the Forest Service. The expertise and the dollars are distributed to State forestry organizations that work directly with the landowners.

Fiscal year 1981 output levels were negotiated between State forestry organizations and the Forest Service. These levels, or targets, represent what is expected from combined Federal and State funding. Tables 48, 49, and 50 display some comparisons of funding, targets, and accomplishments.

The State and Private Forestry cooperative programs are presented in the four categories shown below. The first three categories include programs for which funds are appropriated for the Forest Service. The "Other programs" category includes programs for which funds are allocated to the Forest Service by other agencies.

--Cooperative resource protection.
--Cooperative resource management.
--General forestry assistance.
--Other programs.

COOPERATIVE RESOURCE PROTECTION

Two programs authorized by the Cooperative Forestry Assistance Act of 1978 provide assistance for forest pest management and rural fire protection.

Forest Pest Management

The Forest Pest Management (FPM) program consists of protecting the forest resources on lands of all ownerships from forest insects and disease. FPM works directly with National Forest System (NFS) and other Federal land managers, as well as State officials, in providing survey, prevention, suppression, technical, and financial assistance. The appropriation for the program in fiscal year 1981 was $22.7 million.

Survey and Technical Assistance

Early discovery and evaluation of incipient pest problems can mean that the loss of trees and the cost of suppression are reduced.

In 1981, detection and evaluation surveys were made on 750 million acres of forested lands of all ownerships. The Resources Planning Act target was 461 million acres. This substantial increase reflects the unprecedented acreage currently infested with gypsy moth and spruce budworm.

Technical assistance was provided to land managers and State pest specialists through direct consultations, specialized training, and workshops. Inclusion of insect and disease management strategies in resource management was emphasized.

Prevention and Suppression

Forest Pest Management protects forest resources, including timber, watersheds, recreation, wildlife, and esthetics, using an integrated pest management (IPM) approach. IPM employs a variety of tactics, including silvicultural, biological, chemical, and mechanical means.

Projects were conducted against the gypsy moth and spruce budworm in the Northeast, southern pine beetle in the South, and dwarf mistletoe and mountain pine beetle in the West. A total of 3.4 million acres received treatment.

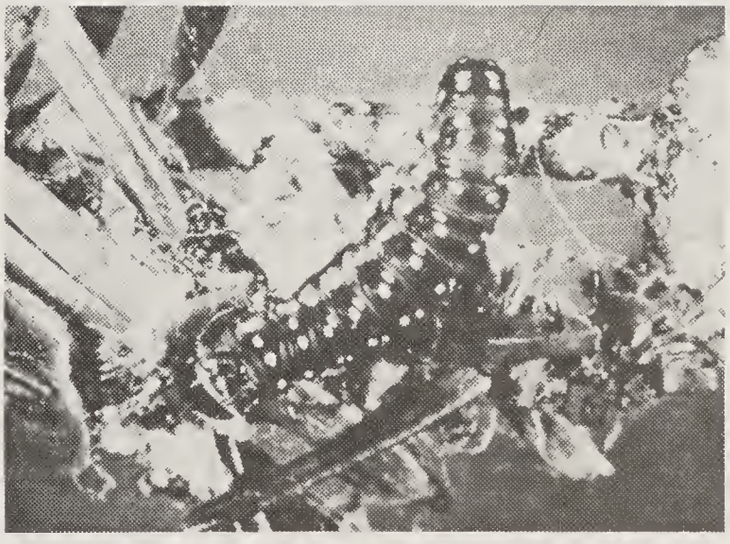


Figure 31. Foliage being consumed by eastern spruce budworm in Maine.

Gypsy moths defoliated trees on 12.9 million acres in the Northeast--a 250 percent increase over 1980. Cooperative suppression projects were conducted in Maine, New Jersey, New York, Pennsylvania, and Rhode Island. Larval populations were reduced and foliage was protected on about 341,000 acres of forested communities and recreation areas. Chemical insecticides and the bacterium Bacillus thuringiensis (B.t.) were used effectively.

Spruce budworms caused defoliation on about 10.5 million acres in the United States. Suppression activities using both chemicals and B.t. were conducted on 1.1 million acres in Maine. An estimated 8.2 million cords of wood valued at $115.3 million were saved. The Federal share of the cost was reduced because of the large number of projects Nationwide.

Southern pine beetle populations were generally low during 1981, although some prevention and suppression activities were required. An estimated 26.5 million cubic feet of timber worth $13.6 million were protected, which involved the removal of about 24.5 million cubic feet of infested timber from 27,500 acres. Special projects were conducted to demonstrate silvicultural practices for reducing stand susceptibility to beetle attack.

Dwarf mistletoe was suppressed on 12,000 acres of National Forest System lands. This protected uninfected trees and salvaged 1.4 million cubic feet of infected timber. Much of this work was accomplished in conjunction with harvesting and reforestation.

Mountain pine beetle infestations were treated on 214,000 acres of intermingled Federal, State, and private lands to protect 4.5 million cubic feet of timber valued at $1.4 million. An additional 2.6 million cubic feet of timber were removed. Demonstration areas showing the benefits of preventive thinning techniques were established or continued.

Special Projects

Thirty-eight special projects are underway to acquire information or transfer new technology. Included are projects to collect data on losses due to forest pests; this information will aid in controlling project decisions, setting research priorities, and projecting timber supplies. Projects also include training and certifying Federal employees in the proper application of pesticides; producing the Douglas-fir tussock moth virus; and participating in the Department's National Agricultural Pesticide Impact Assessment Program, which provides information on pesticides to the Environmental Protection Agency.

Pesticide Use on National Forest System Lands

Pesticides are a component of integrated pest management on National Forest System lands. This management is key to accomplishing such things as the prevention and suppression of insect and disease outbreaks, reduction of unwanted vegetation, and control of damaging vertebrate populations. Before pesticides are prescribed, environmental analyses are made. Only those chemicals registered by the U. S. Environmental Protection Agency are used.

In fiscal year 1981, 308,011 acres of National Forest System lands were treated with pesticides. This is 66 percent of the 5-year average of 466,736 acres treated annually. Of the total, 197,051 acres were treated for vegetation management, 53,289 acres for insect and disease prevention and suppression, and 57,671 acres for animal damage control. This represents pesticide applications on less than 1 percent of all NFS lands each year. No known significant adverse environmental effects resulting from the use of pesticides occurred in 1981.

Vegetation Management--Vegetation management is the manipulation of the kinds, amounts, quality, and condition of plants. Forest Service programs range from complete protection for all vegetation to intensive management that favors a particular plant species. About 39 percent of commercial forest land in the United States is dominated by undesirable vegetation. Significant gains in productivity can accrue from increased vegetation management activities on these lands. Vegetation management activities include: noxious weed control, range improvement and maintenance, site preparation, conifer release, thinning, rights-of-way maintenance, fire protection, and general weed control. Frequently used herbicides are 2,4-D, dicamba, glyphosate, and picloram.

Insect and Disease Prevention and Suppression--Both native and introduced insect species cause considerable economic losses to our Nation's forests. The intensity of insect control efforts is directly related to the value of the trees at risk and the type of damage. Prevention, through sound forest management, is the first line of defense against forest insects; however, when an outbreak occurs, direct control may be justified. In such cases, insecticides are frequently used. Some of the insecticides most often used are acephate, carbaryl, malathion, and lindane. Biological insecticides, including bacteria and viruses specific to the Douglas-fir tussock and gypsy moths, have also been used to reduce populations of these pests and protect foliage.

Tree diseases can be of considerable economic importance. Generally, only forest areas that are intensively managed are subject to control by pathogens. Although most control is cultural, pesticides are important, especially on the several hundred thousand acres of specialty forests such as nurseries, seed orchards, and windbreaks.

Animal Damage Control--Damage from animals is usually insignificant compared with their esthetic and recreational value. However, some forest management practices can cause habitat alterations that may lead to abnormal population levels of certain species. Most damage by vertebrates occurs during the early forest regeneration phase. Animal pests include deer, elk, bears, rabbits, porcupines, pocket gophers, beavers, and small rodents. Rodents are often controlled by using chemical poisons (e.g. baits, repellants, predacides). Animal repellants are also used to protect new seedlings from deer and elk.

Table 51 is a summary of all pesticides used on NFS lands in 1981.

Rural Fire Prevention and Control

The Rural Fire Prevention and Control program provides technical and financial assistance to States to prevent losses of timber and other resources on non-Federal rural lands. Federal funding for the program in fiscal year 1981 was $20 million.

In calendar year 1980, the States were able to protect 805 million acres and keep the number of human-caused fires to 134,000 that burned 2.2 million acres (see Table 52).

Efficiency is important in fire protection programs for non-Federal lands (including industry lands), and this aspect is now being evaluated in a cooperative effort between the Forest Service and the States. An integral part of this evaluation is to determine the Federal role in assisting the States to achieve and maintain an economically efficient level of fire protection. A preliminary report is scheduled for completion in February 1982.

FIRETIP--Firefighting Technologies Implementation Project--was initiated to provide leadership in transferring firefighting technologies and concepts to State and local agencies involved in wildland fire protection. The feasibility, benefits, and costs of the technologies have been successfully tested, and project personnel are now assisting the Florida Division of Forestry in implementing selected technologies that will improve effectiveness and efficiency.

The Disaster Relief Act of 1974 authorizes fire suppression assistance grants to States for fires that are classified as major disasters. During 1981, grants totaling $800,000 were made for two fires in Oregon and two in Nevada.

The most destructive fire in fiscal year 1981 was the Panorama Fire that occurred in and adjacent to San Bernardino, California (November 1980). Four lives were lost and more than 350 structures including many homes were damaged or destroyed (see Figure 32). This fire was declared a major disaster by the President. Estimates of Forest Service fire suppression expenses that qualify for reimbursement for the Panorama Fire and other blazes within that 17-day period in November total $7.6 million.

Figure 32. Burned houses and charred trees demonstrate the devastation of the Panorama Fire near San Bernardino, California, in November 1980.

The Forest Service works with the General Services Administration to make excess property available to State Foresters and other cooperators for fire protection activities. During 1981, 1,168 vehicles valued at $7 million were loaned to the States to extend their fire protection programs. Plans to convert the Army M-880 truck to a fire suppression vehicle have been distributed to State forestry organizations in anticipation of large quantities of the trucks being declared excess and diverted to State fire protection use.

The Forest Service also cooperates with State Foresters and with the Advertising Council to carry out the Smokey Bear Cooperative Forest Fire Prevention campaign. In 1980, the media donated more than $48 million worth of public service time and space for Smokey's messages.

Special awards are given annually to individuals and organizations who make an outstanding contribution to the prevention of human-caused forest or range fires. The Canadian Forestry Association received the 1981 Golden Smokey award in recognition of forest fire prevention efforts during the last 25 years.

COOPERATIVE RESOURCE MANAGEMENT

Assistance for forest management, wood utilization, organization management, resource planning, and technology implementation are authorized by the Cooperative Forestry Assistance Act of 1978.

Tables 53, 54, and 55 illustrate accomplishments for cooperative forestry activities during 1981.

Rural Forestry Assistance (RFA)

This program includes technical assistance to: nonindustrial private forest landowners (164,000 owners last year) to improve forest management; landowners, harvesters, and processors for improving efficiency of wood utilization; and nurseries for the production and genetic improvement of tree seedlings.

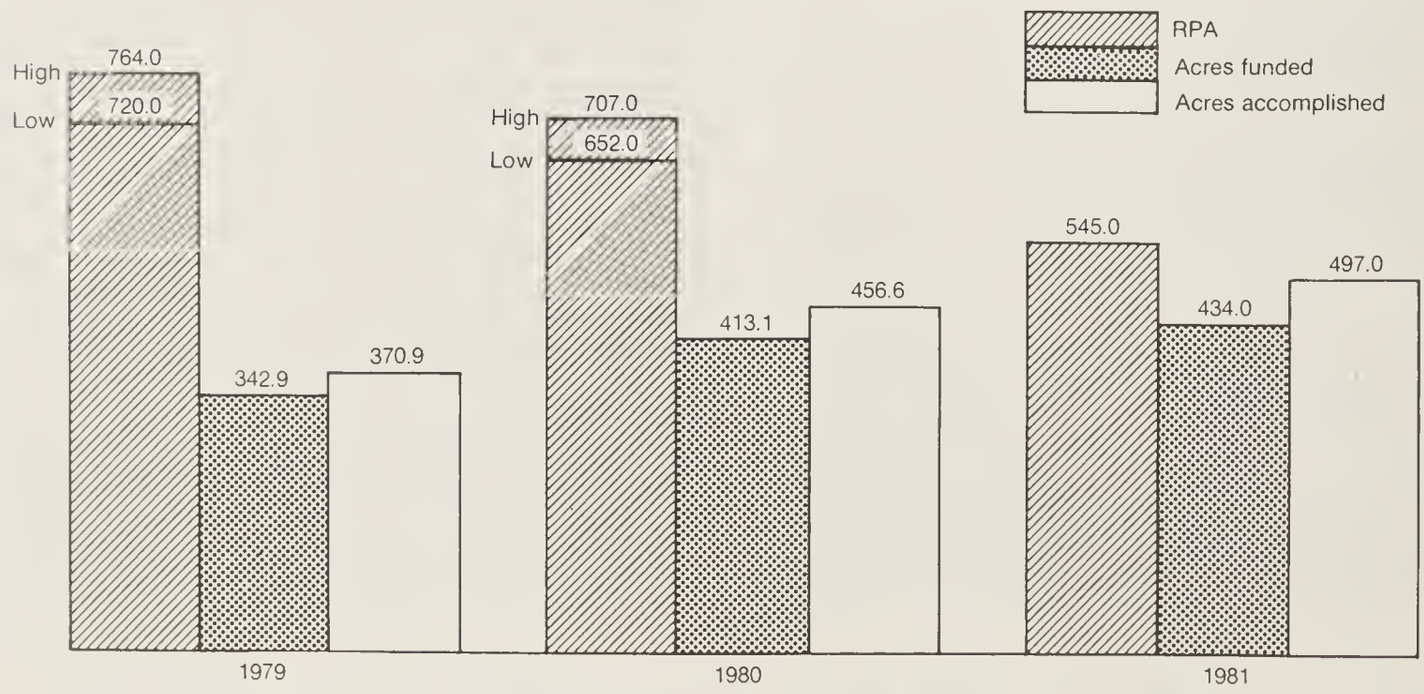
Funding for RFA in fiscal year 1981 totaled $17.8 million, with the intent being to expand assistance to reforest more nonindustrial private forest lands than ever before.

Two important objectives of this effort were expansion of State nurseries in the South and accelerated tree improvement to help meet the Nation's softwood demands. Notable as a result of these efforts were (1) a 20-percent increase (319,000 acres in 1980 to 383,000 acres in 1981) in pine reforestation and (2) an additional 30 million pine seedlings being produced in the southeastern States. Nationwide, more than 497,000 acres were reforested on nonindustrial private lands, an increase of 32,000 acres from 1980. Figure 33 illustrates reforestation trends on nonindustrial private lands during the last 3 years. The acres reforested include those accomplished through the Forestry Incentives and Agricultural Conservation Programs.

The Forest Service used several new efforts in 1981 to improve the utilization of wood, a matter of prime importance because of ever-growing needs for wood fiber.

Figure 33.

Reforestation
(Thousand Acres)



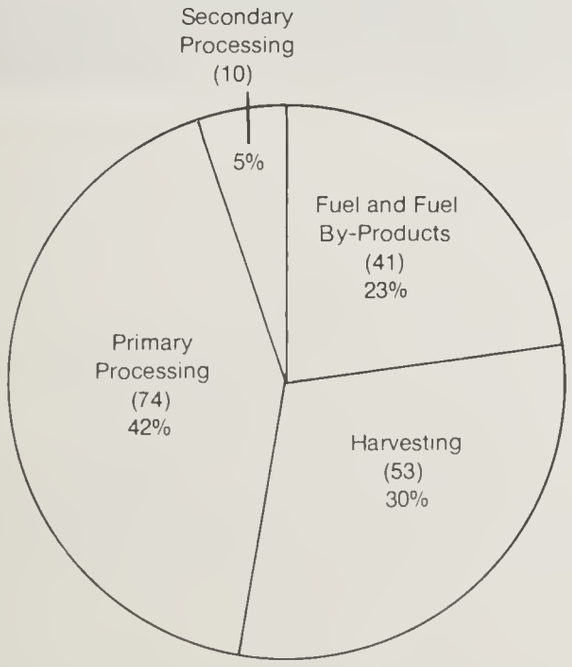
Wood utilization efforts center around four major activities: harvesting (cutting trees and hauling them to the mill), primary processing (initial milling of logs), secondary processing and drying (finishing into desired sizes and products, and drying), and processing of fuel and byproducts (using "waste" from logging and milling).

In 1981 more than 178 million cubic feet of wood were used or produced more efficiently as a result of technical assistance to loggers and processors (see Figure 34). The Sawmill Improvement Program (SIP) is just one way in which wood utilization was improved in 1981. SIP involves studying sawmill operations and making recommendations for improving their efficiency in converting logs to lumber. On the average, a SIP-studied softwood dimension mill increases lumber production by 527 thousand board feet in the first year while reducing log volume sawn by 95 thousand cubic feet.

In fiscal year 1981, about $2.6 million of State funds and $1.9 million of Forest Service funds were spent directly on better use of wood for energy. Examples of 1981 accomplishments in this area include technical assistance to convert heating systems to use wood in mills, several funiture plants in North Carolina, universities in Alabama and Tennessee, and a prison farm in Mississippi.

Figure 34.

Improved Utilization of Wood
(Million Cubic Feet)



Total 1981 improved utilization of wood—178 million cubic feet

Utilization programs also were broadened by special efforts to transmit technology concerning residential and commercial light frame construction. The Truss-Framed System, an improved engineering design developed at Research's Forest Products Laboratory, is the focus of this effort. (See photo, page 46.) This system offers builders and home buyers excellent potential for high quality, economical construction and improved structural integrity. Planning for the truss-framed project has been completed and an engineering specialist employed to lead the transfer effort. As a result, the mechanics have been set in motion for Forest Service partnership with the National Association of Home Builders and U. S. Department of Housing and Urban Development to make known the advantages of the Truss-Framed System.

As an indicator of the success of the wood utilization program, the Sawmill Improvement Program in softwood mills produces benefits over costs at a ratio of 6:1. This means that the public receives benefits six times greater than the investments made by industry and government to provide the productivity improvement.

Urban Forestry Assistance

Planners, developers, builders, landscape architects, city foresters, citizen groups, tree service companies, forestry consultants, and homeowners are some of the beneficiaries of assistance authorized by the urban and community forestry programs. The management of trees, forests, and associated natural resources in and near urban areas is the direction this aid takes.

Examples of work in 1981 include: planning assistance to reduce loss of forest land to urban sprawl, reduce soil erosion, and protect the forest during development; advice on the use of wood waste; guidance on the placement and use of trees for passive energy conservation; assistance to cities relative to the care and management of trees, and recommendations to owners of the urban forests on how they can manage them for many uses. This past year more than 3,500 urban areas received assistance. Federal funding for the program was $1.8 million.

One of the most significant developments is the implementation of an urban and community forestry leadership role within the American Forestry Association (AFA) to assist the Forest Service in program guidance. Also, the AFA, with aid from the Forest Service, initiated a national newsletter, a vehicle for urban and community forestry technology transfer.

Assistance in Management, Planning, and Technology Implementation

Three programs constitute this portion of forestry assistance. They are designed primarily to help State Foresters develop stronger organizations to plan, manage, and protect non-Federal forest lands.

Organization management assistance involves helping State Foresters improve their organizations so that they can be more effective in accomplishing forestry goals. Key activities included workload analysis, performance evaluation, interpersonal skill training, executive development, and office practice improvement.

The primary emphasis of planning assistance is to assist each State in devising and using a process for planning forest resource use. This will ensure that data regarding forest lands are available for planning at both State and Federal levels.

Financial assistance totaled approximately $1.67 million in fiscal year 1981 with most States employing planners to develop the planning process. This assistance included conducting pilot projects for mapping prime timberlands. To date, 48 States have begun a forest resources planning process. Most will develop a long-range plan by 1983. These plans are seen as an essential element in developing the national RPA Program.

The purpose of technology implementation is to get research results into widespread use as quickly as possible. In 1981, funding was $800,000 and more than 50 projects were underway. Two excellent examples are the Truss-Framed Light Construction System, discussed earlier, and the Colorado State Technology Transfer project.

The first part of the Colorado State Technology Transfer project is midway towards completion. Four State and four Federal agencies are involved. This part, known as "Integrated Forest Management," provides a number of forest improvement technologies to private forest landowners on Colorado's Front Range and in the San Juan Valley. The purpose is to help landowners with livestock grazing, investment potential, subdivision potential, recreation use, wildlife, wood fiber production, protection against the mountain pine beetle, or maintenance for esthetic values. The timber stand shown in Figure 35 is a dramatic example from this project where range and timber benefits are being realized today.

Planning has been completed for a second Colorado project, "Blowing Snow Management." This will permit farmers, ranchers, highway departments, railroads, ski resort operators and others to put snow where it is needed and keep it out of areas where it causes problems. Agencies from Wyoming are also involved in this project.

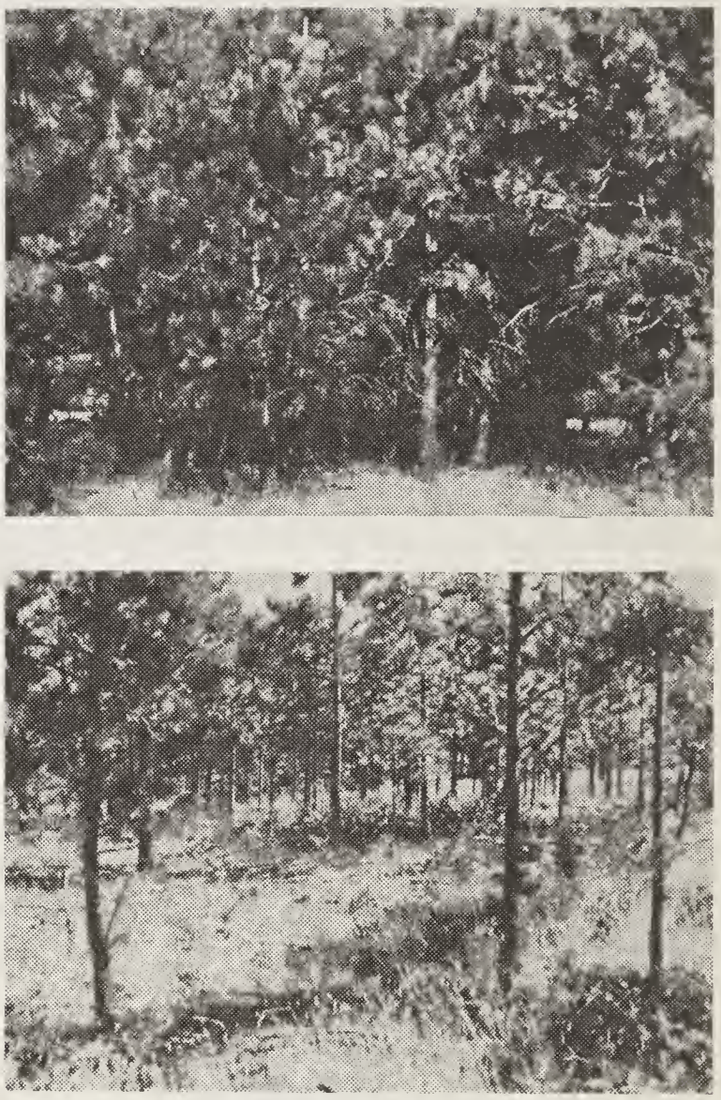


Figure 35. Ponderosa pine stand in Colorado Front Range before (top) and after (bottom) thinning.

GENERAL FORESTRY ASSISTANCE

General Forestry Assistance projects are highly specialized with objectives that are not inherent in other Forest Service programs.

Gifford Pinchot Institute for Conservation Studies

The Gifford Pinchot Institute for Conservation Studies is a special unit of the Forest Service located at the Grey Towers National Historic Landmark in Milford, Pennsylvania.

The Grey Towers estate was the home of Gifford Pinchot, pioneer conservationist, founder and first Chief of the Forest Service, and two-term Governor of Pennsylvania. This unique cultural and historic landmark is managed as a center to

interpret the evolution of American forestry and natural resources conservation and to study and develop technology transfer, issue recognition, policy formulation, public education, interpretive services, and human resource programs for the purpose of improving natural resource conservation.

Accomplishments with $580,000 in fiscal year 1981 included:

--two contract studies on technology transfer with recommendations for improving Forest Service organization and information processes, and for applying improved technology.

--a study initiated with the National Science Foundation to identify how technology can be incorporated into planning programs and setting priorities.

--sponsoring a national task force that made recommendations on the role of the Forest Service in the human resources program area.

--tours and conferences for 22,000 visitors.

FIRESCOPE

FIRESCOPE is a program for developing and applying a system to coordinate fire services on multijurisdictional fires. It combines the efforts of the Forest Service, the State of California, and local agencies in Southern California. The program technologies are being adapted and applied to other areas of the Nation. FIRESCOPE was used effectively during the Panorama fire in November 1980. The fiscal year 1981 appropriation for the program was $2 million.

Boundary Waters Canoe Area

The Boundary Waters Canoe Area Wilderness Act of 1981 authorized the Secretary of Agriculture to cooperate with the State of Minnesota in the development of renewable resources on State, county and private lands. A total of $3 million was appropriated for this purpose in fiscal year 1981. Some of the expenditure went to reforest 14,000 acres, improve timber stands on 12,000 acres, produce 22 million tree seedlings, and improve or maintain more than 800 miles of forest roads. Financial and technical support was also provided to resort owners and outfitters in and adjacent to the Wilderness, whose businesses are adversely affected by the legislation.

Dutch Elm Disease

Demonstration areas for the control of Dutch elm disease were maintained to show techniques proven effective in reducing disease. A variety of technical and popular publications to publicize and explain the techniques and value of control are in various stages of preparation. Funding for this project was $500,000 in fiscal year 1981.

OTHER PROGRAMS

State and Private Forestry cooperates with other Federal agencies in the administration of some programs. Funds are appropriated to the other agencies, and they in turn allocate funds to the Forest Service for the forestry aspects of the programs.

Incentives

Various incentives are available to encourage reforestation and land improvements by small, nonindustrial, private owners:

The Forestry Incentives Program (FIP) and the forestry portion of the Agricultural Conservation Program (ACP) both are administered jointly by the Forest Service and the Agricultural Stabilization and Conservation Service (ASCS), and both offer incentives for landowners to engage in reforestation and timber stand improvement.

The purpose of the cost-sharing and the technical assistance in the FIP is to increase yields of forest products from private lands currently producing below their potential.

From the program's inception in 1973 through fiscal year 1981, FIP has been responsible for more than 2 million acres of timber lands being treated, 55 percent with reforestation, and 45 percent with timber stand improvement. In fiscal year 1981, 314,000 acres were treated: 211,000 acres with reforestation and 103,000 acres with timber stand improvement. The projected increase in total wood production as a result of this effort is 1.3 billion cubic feet. This is enough wood to build 780,000 3-bedroom homes. The total spent for FIP in fiscal year 1981 was $19 million. Per acre costs were $70 for reforestation and $27.50 for timber stand improvement.

The 130,000 acres treated (more than 53,000 acres of reforestation and 76,000 acres of timber stand improvements) in the fiscal year 1981 ACP program is the greatest number since 1974. A total of $4.9 million in Federal funds was spent for forestry under this program. Costs averaged $62 per acre for tree planting and $25 per acre for timber stand improvement.

The Economic Recovery Tax Act of 1981 lowered Federal income tax rates and increased credits allowed against gift and estate taxes. Other recent legislation has provided a 10 percent investment credit and amortization of reforestation costs. In recognition of the President's increased emphasis on tax incentives,

a taxation and finance assistance effort was initiated during fiscal year 1981. It will concentrate on making State and Private Forestry personnel and State Foresters knowledgeable of taxation incentives for timber production.

As a result of the Federal Crop Insurance Act of 1980, the Forest Service is helping to develop a pilot program for forest landowners in selected counties in five southeastern States to insure their investments in pine trees against risks.

Rural Community Fire Protection

The Rural Community Fire Protection Program provides technical and financial assistance to train, organize and equip rural fire departments. In 1981 3,000 applications for financial assistance grants were approved. These grants were all matched by local funds which came from donations, subscriptions, rummage sales, and in some instances from local taxes.

Resource Conservation and Development

The Forest Service supports the Soil Conservation Service in the forestry aspects of the Resource Conservation and Development (RC&D) Program. Funds allocated to the Forest Service in fiscal year 1981 totaled $946,000 which made possible such measures as tree planting, timber stand improvement, utilization and marketing assistance to landowners, development of forest management plans, promotion of tree farm program activities, and pest control advice to landowners.

Cooperative Watershed Activities

Though overall leadership is assigned to the Soil Conservation Service, the Forest Service has responsibility for forestry aspects in small watershed protection and flood prevention projects and river basin studies. Watershed and flood prevention projects primarily aim to control flooding, erosion, and sediment to solve a number of local resource and economic problems. River basin studies are directed toward long-term water and land resource uses on both public and private lands and are regional in scope.

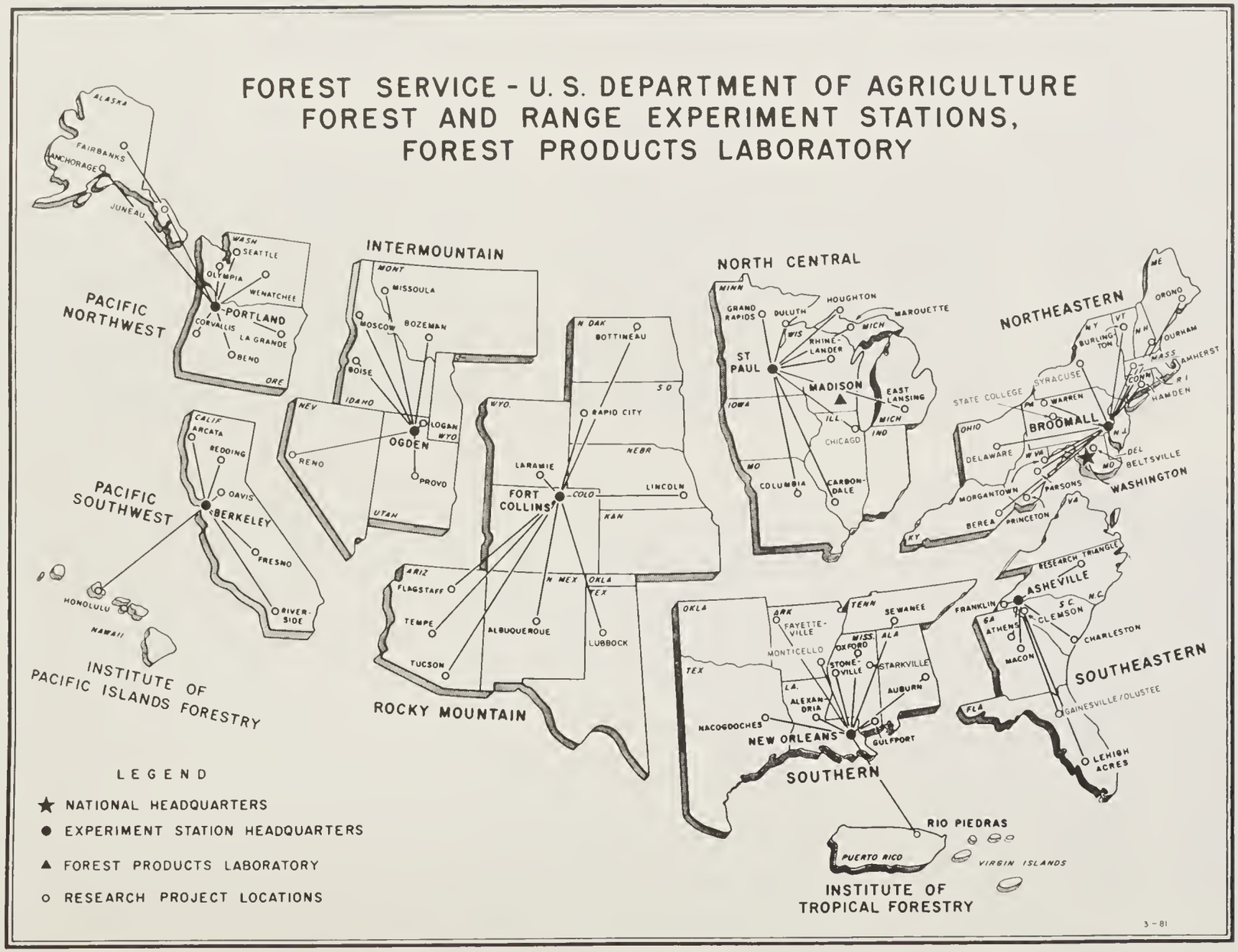
Approved plans are required before treatment can be carried out through these programs. In 1981 planning by State and local sponsors with technical and financial help from the Forest Service was concentrated on 52 small watersheds with an allocation of $344,000 and 49 river basins with an allocation of about $2 million. Once plans are approved land treatments can be implemented.

The Forest Service spent $807,000 to implement 111 small watershed projects across the Nation.

Major increases in work done during 1981 over 1980 were intensified fire protection, woodland grazing control, and wildlife habitat development. Some decreases were in recreation area development, forest roadbank stabilization, and proper harvest cutting (see Table 56).

About $3.8 million was invested in land treatment measures within eight flood prevention projects located in California, Iowa, Maryland, Mississippi, Oklahoma, Texas, Virginia, and West Virginia (see Table 57).

Figure 36.


FOREST SERVICE - U. S. DEPARTMENT OF AGRICULTURE
FOREST AND RANGE EXPERIMENT STATIONS,
FOREST PRODUCTS LABORATORY
ALASKA
FAIRBANKS
ANCHORAGE
JUNEAU
PACIFIC NORTHWEST
WASH
SEATTLE
OLYMPIA
WENATCHEE
PORTLAND
CORVALLIS
LA GRANDE
BEND
ORE
INTERMOUNTAIN
MONT
MISSOULA
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LUBBOCK
ROCKY MOUNTAIN
OKLA
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FAYETTE-VILLE
TENN
SEWANEE
TEX
MONTICELLO
MISS
OXFORD
ALA
STONE-VILLE
STARKVILLE
AUBURN
LA.
ALEXAN-DRIA
NACOGDOCHES
NEW ORLEANS
GULFPORT
SOUTHERN
RESEARCH TRIANGLE
ASHEVILLE
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N.C.
CLEMSON
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ATHENS
CHARLESTON
MACON
SOUTHEASTERN
FLA
GAINESVILLE/OLUSTEE
LEHIGH ACRES
RIO PIEDRAS
PUERTO RICO
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INSTITUTE OF TROPICAL FORESTRY
LEGEND
NATIONAL HEADQUARTERS
EXPERIMENT STATION HEADQUARTERS
FOREST PRODUCTS LABORATORY
RESEARCH PROJECT LOCATIONS
3 - 81

INTRODUCTION

The Forest Service research program develops scientific and technical knowledge for enhancing the economic and environmental values of America's 1.6 billion acres of forest and associated range lands.

This program is conducted through a network of eight Regional Forest and Range Experiment Stations and the Forest Products Laboratory at Madison, Wisconsin (see Figure 36). Some 4,000 studies are carried out by approximately 970 scientists at 81 locations throughout the United States, Puerto Rico and the Pacific Trust Islands. (Selected research outputs and a detailed breakdown of fiscal year 1981 publications are presented by subject area in Tables 58 and 59.)

The research program is coordinated with related efforts at 60 forestry schools and agricultural experiment stations at land-grant institutions located throughout the United States. Forest Service scientists also work closely with researchers from other public agencies and the forest industries. In 1981, research appropriations totaled $127.8 million, approximately 11 percent of which supported cooperative studies at colleges, universities, other research organizations and industry. In addition, the Forest Service received more than $2 million from outside sources for cooperative research. (A breakdown of the research budget, including funds expended for cooperative research, is shown in Tables 60 and 61).

Forest Service research programs support international forestry through cooperation with other United States agencies, the United Nations, and foreign countries.

Forest Service research is closely coordinated with and strongly supports National Forest System and State and Private Forestry programs.

Through publications, symposia, workshops, and direct public contact, the Forest Service transfers its research findings to Federal, State, and local policymakers, and public and private land managers.

The 1980 RPA Program accorded high priority to research, and recognized that new or improved technology had much to contribute to increased production of goods and services from the Nation's forest and associated range lands. Twenty-three broad areas of research were selected for initiation or increased emphasis by 1985. In fiscal year 1981, increased emphasis was placed in five of these areas: eastern hardwoods, softwood utilization and management, integrated pest management, rangeland research, and disturbed area rehabilitation. Discussion of key accomplishments in 1981 and other program information follow.

SCOPE OF THE RESEARCH PROGRAM

The program covers an extensive spectrum of biologic, economic, engineering, and social disciplines to solve increasingly complex problems involving forests and related ecosystems and their relationship to urban and rural areas. The aim of this research is to learn how society can best use and protect plant, animal, soil, water, and esthetic resources. In this quest, equal emphasis is placed on conservation of renewable resources, productivity to meet the needs of a growing Nation, and improvement of the environment.

Much of the research is national and international in scope and reaches nearly every major terrestrial ecosystem. The geographic range of the program extends from the tropics to the Arctic and from Hawaii and territories in the Pacific to Puerto Rico in the Atlantic.

CONTRIBUTIONS OF SCIENCE TO FOREST PRODUCTIVITY

Although evaluating the contributions of science to forest productivity is difficult, a recent study estimated the benefits and costs associated with 81 innovations made as a result of research. The benefits ranged from those that are easily valued (such as cubic feet of increased growth per year) to those that are subjective (such as recreational experiences improved by better landscape management techniques).

At least half of the innovations resulted in benefits such as creation of income, additional utilization of natural resources, and improved quality of environments. In 40 to 50 percent of the cases, new, better, or cheaper products resulted or management costs were decreased. A detailed discussion of this study and the criteria for evaluating research programs in the Forest Service appear in a 1981 Forest Service report entitled, Criteria for Deciding About Forestry Research Programs.

To determine more precisely the benefits of Forest Service research, a program called "Methods for Evaluating Forestry Research" was initiated in 1981 at the North Central Forest Experiment Station, St. Paul, Minnesota. The primary objective is to develop methods for estimating and evaluating the impacts of various kinds of innovations on forest productivity.

SCIENTIFIC RESEARCH IN THE MOUNT ST. HELENS AREA

The eruption of Mount St. Helens on May 18, 1980, provided a unique opportunity for scientific research. The blast effect of the eruption, the ashfall, and the flows of debris and pyroclastic material created environments that required life to

Figure 37. Scientists monitoring erosion and redeposition of ash in the Mount St. Helens blast zone.

begin anew (see Figure 37). The Pacific Northwest Forest and Range Experiment Station was asked by public and private land managers to provide a scientific assessment of the volcano's effects: How will vegetation naturally return to the area? Will the properties of the ash retard revegetation or tree growth? Will timber blown down by the blast have commercial value? What will be the effects of erosion? What effects did the blast have on lakes and streams, on insects, and on wildlife habitat?

Studies are already yielding important findings, some of which are described below:

Natural revegetation

-- Vegetation is returning fastest along lakeshores and streams where mineral soil was exposed and in areas clearcut before the eruption.

-- Bulk density of ash decreases and water-holding capacity increases in proportion to distance from the volcano.

-- Plant growth is not adversely affected in areas more than 30 kilometers from the volcano.

Timber breakage, energy biomass, and potential fire hazard

-- Timber breakage for all species averages 7 percent, a similar rate to breakage experienced in clearcut harvesting.

-- Biomass available for energy production is about 5,000 cubic feet per acre.

-- Small diameter forest fire fuels average about 2.9 tons per acre, substantially less than found in logged areas.

Natural erosion rates

-- Rill and gully erosion of new deposits from areas clearcut before the eruption is two to eight times greater than in adjacent areas where the blast downed standing timber.

-- Interactions between revegetation and erosion and how streams and lakes will recover require further study.

Forest insects

-- Nearly 100 percent mortality of young tussock moth larvae can occur when exposed to ash.

-- The full effects of ash on defoliating insects (Douglas-fir tussock moth, larch casebearer, and spruce budworm) require additional study.

The Pacific Northwest Forest and Range Experiment Station is coordinating the biological research programs in the Mount St. Helens area. Cooperating in the studies are university scientists, Weyerhaeuser Company, the Washington State Department of Natural Resources, and other Federal agencies. Information gained from this research has been used by the Gifford Pinchot National Forest in preparing the Mount St. Helens Management Plan and by other resource managers for salvage, watershed management, and revegetation planning.

FORESTRY INTENSIFIED RESEARCH (FIR) PROGRAM IN SOUTHWESTERN OREGON

An estimated 1 million acres of productive forest land in southwestern Oregon are classified as very difficult to harvest or regenerate using today's technology. The diversity of conditions causes difficulties in applying silvicultural practices, road building, and logging. Much of the remaining forest land requires special care to insure adequate restocking. About 177,000 acres of Federal lands have been or may be removed from the timber base because of harvesting and reforestation problems, resulting in a loss of timber sale benefits.

In 1978, a cooperative 10-year research program was initiated for speeding development and implementation of reforestation and stand management technology crucial to southwestern Oregon and adjacent parts of northern California. FIR is divided into two interrelated phases: the Adaptive Research and Technology Transfer Phase and the Fundamental Phase.

The adaptive phase, which mobilizes existing technology, completed the third year of technology transfer in 1981. For example, specialists from Oregon State University initiated three studies and conducted five workshops on reforestation problems for 410 foresters and landowners from southwestern Oregon. Specialists also completed and published results from four studies, prepared three general interest articles, and produced a quarterly newsletter reaching about 900 land managers.

The fundamental phase, designed to overcome unsolved problems and reduce costs, completed the second year in 1981. Scientists from the Forest Service, Fish and Wildlife Service, and four universities initiated 36 long-term studies on problems of reforestation, site classification, young stand management, tree improvement, and growth prediction. Results from one study suggest that improved selection of nursery stock can result in more successful reforestation on thousands of acres of hard-to-reforest sites (see Figure 38). Bureau of Land Management foresters have begun to use these findings to facilitate harvest in areas

Figure 38. Test plot of Douglas-fir planting stock grown in the nursery under different cultural practices.

previously withdrawn from the timber sale base because of reforestation failure.

Completion of the research program in 10 years is expected to pay large dividends on Federal forest lands. Technology to harvest and reforest the estimated 177,000 acres of Federal lands removed from the timber base could produce direct annual benefits from timber sales of more than $50 million. Similar benefits could accrue on other currently nonproductive public and private forest lands. For example, conversion of the 429,000 acres of brushfields and nonstocked areas on forest industry lands to timber-producing acres could add 55 million cubic feet of softwood timber per year with an estimated annual stumpage value of $72.6 million. Application of intensive cultural practices to new forests throughout southwestern Oregon could increase stand growth by one-third or more.

RESOURCE PROTECTION

Fire and Atmospheric Sciences Research

The objectives of Fire and Atmospheric Sciences Research are to develop methods and guidelines to prevent and control wildfires and to develop prescriptions for using controlled fires to achieve beneficial forest and range objectives. Examples of accomplishments are:

--A fuel appraisal process which assesses fire hazard in terms of the average area of expected burn by a wildfire, with and without fuel treatments, has been developed. Managers can use this information, together with their knowledge of the ecological impacts of fire, to select actions in line with costs and resource production goals.

--Fire can be used as a precision tool for forest management. Criteria were developed for prescribed fires in logging slash to prepare sites, reduce hazards, and meet other management goals. Computer systems quickly analyze climatological data to predict desirable conditions for prescribed fires.

--Methods to dispense prescribed fire from helicopters are being evaluated. Preliminary results of studies and operational tests indicate that fire can safely be applied 10 times faster from the air than from the ground. Several large timber companies and two State forestry agencies are now using aerial application.

Forest Insect and Disease Research

The objectives of Forest Insect and Disease Research are to develop technology to prevent or minimize damage caused by forest insects and diseases in rural and urban environments and to protect wood in use and storage. Examples of accomplishments are:

--The first significant seed production from rust resistant southern pines has been accomplished. By 1985, enough seed will be collected each year to produce 15 to 20 million rust-resistant seedlings. The disease-resistant seedlings will translate into millions of dollars in increased profits for growers of southern pines.

--Present knowledge about the southern pine beetle has been published in a 12-chapter compendium. Findings from the Expanded Southern Pine Beetle Research and Application Program were emphasized. A recent evaluation by a private group showed that the program achieved 262 percent more benefits than would have been likely on a business-as-usual basis.

--An early warning system now can alert forest managers to impending outbreaks of the Douglas-fir tussock moth. The system warned of small 1981 outbreaks in Idaho and British Columbia. By using this system, forest managers can better evaluate their choices for managing such outbreaks.

Renewable Resources Evaluation Research

The objective of Renewable Resources Evaluation Research is to provide comprehensive and continuing information about the location and condition of forests and forested rangelands in the United States. Examples of accomplishments are:

--An evaluation of California's timber resources which includes detailed information on the State's forest acreages, productive potential, and intensity of forest management has been completed. Although over half of the forest land is considered to be unproductive for growing industrial wood, the 13.6 million productive acres include some of the best forest land in the world, 13 percent of which is capable of growing 120 or more cubic feet of wood per acre per year. If the nonstocked acres classified as productive lands were converted to conifer stands now, in 70 years there would be a prospective increase in mean annual yield of 700 million board feet.

--The recently completed inventory of Pennsylvania's forest resources has been used by a European furniture manufacturer to investigate locations for a timber processing plant in the oak-rich region of the Middle Atlantic States. New forest resource statistics revealed the advantages of several Pennsylvania sites. When a State forestry specialist and officials from the Department of Commerce went to Belgium with this information, a Pennsylvania site was selected for the plant.

--New resource relationships are being identified through current resource inventories in the Southeast. In addition to the usual forest area and timber volume data, the recently completed resource inventory for South Carolina provided details about the occurrence and severity of insect and disease damage to the timber. Procedures were also developed to evaluate the suitability of forest lands representing a broad range of habitats as breeding areas for nine nongame bird species. These studies are laying the groundwork for more detailed analyses of other forest resource values.

Renewable Resources Economics Research

The objective of Renewable Resources Economics Research is to provide economic and financial analyses of forest and rangeland management practices and forest product distribution systems. Examples of accomplishments are:

--It has been determined that the main effect of banning log exports would be to lower timber prices in the Pacific Northwest, benefiting log processors at the expense of timber owners. Plywood prices would decrease by less than 4 percent. Lumber prices would decline by less than 2 percent and might increase if processing capacity did not expand on the West Coast.

-- Hybrid poplar plantations could represent an attractive investment to industrial users according to a detailed analysis of financial returns. Irrigation of plantations also increases product yield but is less financially attractive because of higher costs.

--A simplified system has been designed for estimating economic rates of return from timber stand improvement practices; i.e., removing undesirable trees to make room for high value ones

has been developed. Whereas tree planting may not yield a profit in less than 30 years, timber stand improvement often produces a return in 10 years.

Surface Environment and Mining Research

The objectives of Surface Environment and Mining Research are to develop economical and effective surface mine reclamation techniques and to evaluate the impact of mining activities. An example of accomplishments is:

--The importance of a variety of microorganisms in revegetating mine spoil material has been established. Some kinds of beneficial fungi grow around and into plant roots to form mycorrhiza, a symbiotic association that helps the roots absorb nutrients and repel pathogens. For many shrubs and trees transplanted onto mine spoils, innoculation with these beneficial fungi greatly improves survival and growth on these near-sterile, dry, reclaimed lands. This finding has greatly improved reclamation of surface-mined lands in the arid Southwest.

RESOURCE MANAGEMENT

Trees and Timber Management Research

The objective of Trees and Timber Management Research is to develop technology and management guidelines for increasing the productivity and multiple-use benefits of commercial forest lands and for achieving maximum growth of special forest plantations used for energy and chemical feedstocks. Examples of accomplishments are:

--Research in northern California has shown that control of brush in young ponderosa pine and Douglas-fir plantations results in substantial growth increases. Based on 28-year results, brush control in a Douglas-fir plantation can lead to an additional 10,000 board feet per acre at harvest.

--The accumulated information on yellow poplar distribution, uses, biological and environmental features, regeneration methods, stand management opportunities, and growth and yield potentials has been compiled and summarized to provide guidelines for forest owners and managers. This handbook provides a ready reference on management of yellow poplar for a broad range of landowners' objectives.

--Techniques recently developed for managing pollen collected from southern pines have resulted in a doubling or quadrupling of yields of genetically improved seed. These new techniques are now being applied throughout the country.

Forest Watershed Management Research

The objective of Forest Watershed Management Research is to develop methods and techniques for protecting and managing forest and range land watersheds. Examples of accomplishments are:

--Proper design and use of dams, revegetation, and other protective techniques help to prevent gully expansion, restore soil productivity, and slow water runoff in the semiarid West. Not only are investments in soil and water resources protected, but the costs of sediment removal from reservoirs and its disposal are avoided.

--Sewage effluent and sludge applied to forest land on a small scale caused little adverse effect on environmental values and promoted tree growth. Larger scale studies are underway to see if these benefits are achievable on forest tracts up to 60 acres in size.

Wildlife, Range, and Fish Habitat Research

The objective of Wildlife, Range, and Fish Habitat Research is to develop techniques, processes and management guidelines to maintain or improve wildlife and fish habitat, increase forage production, improve soil stability and vegetative cover, and integrate livestock grazing with other forest and range land resource benefits. Examples of accomplishments are:

--The latest technology on shrub nursery practices, shrub seed technology, rehabilitation of lands disturbed by surface mining, and methods of improving plant communities for range and wildlife habitats has been made available through workshops to more than 500 specialists in Federal and State agencies and private industry. This information is in great demand and offers substantial benefits in the improvement of disturbed areas, rangelands, and wildlife habitats.

--Research on the impacts of livestock grazing on streamside forage has shown that streambank stability and vegetation provide an "early warning" of adverse grazing impacts on fisheries. Information derived from research such as this will help insure plentiful forage for livestock as well as productive fisheries.

--Some 25,000 playas, or wet-weather lakes, which dot the Southern Great Plains provide excellent habitat in intensively farmed areas for resident wildlife, migratory shorebirds, raptors, and large concentrations of wintering waterfowl. Playas that collect irrigation runoff water provide the best habitat. Through careful management of grazing, cropping, and designing irrigation catchment basins in key playas, farmers can improve their

wildlife resources considerably, perhaps building the basis for productive lease or fee hunting.

Forest Recreation Research

The objectives of Forest Recreation Research are to provide both public and private land managers with the marketing and management technology to increase opportunities for and benefits from outdoor recreation experiences and to develop knowledge for managing vegetation in and near urban areas for maximum economic, social, and environmental benefits. Examples of accomplishments are:

--Research has found that the common practice of closing campsites or diverting wilderness recreationists to areas of less use does little to improve the condition of the campsites. Therefore, managers should attempt to confine recreation use to as small an area as possible by encouraging people to use permanent campsites. This would limit damage and leave more of the wilderness undisturbed.

--Deciduous trees intercept a greater portion of solar energy during the winter than suspected--from a third to a half of the solar energy available is intercepted by the branches. Using this information, techniques have been developed to provide ways to lower home heating and cooling costs in urban and other areas and reduce the Nation's energy consumption. Wide-scale application of these techniques could result in energy savings estimated at 1 billion dollars annually.

--A "report card" index has been developed that can be used to monitor and assess long-term recreation management in terms of the quality of experience provided. This system is being experimentally applied by several Federal recreation management agencies and State park systems in the Northeast, and the National Campground Owners Association has recommended its use by commercial campground operators.

Forest Products Utilization Research

The objectives of Forest Products Utilization Research are to provide new technology for more efficient utilization of forest products including whole trees, small trees, and wood wastes of all species; to improve wood products; and to reduce costs, energy consumption, and environmental degradation in forest products processing. Examples of accomplishment are:

--The salvage methods and recovery potential for standing dead and blown down timber in the Mount St. Helens area have been determined. Low breakage levels are permitting rapid salvage, thus avoiding loss of timber to decay-causing organisms, insects and fire.

--A process that can alleviate a waste disposal problem of the pulp and paper industry has been developed through cooperative research. The process removes the objectionable dark brown color from the plant effluent by using sludge from papermill waste treatment plants. One company is now planning a pilot-scale operation.

--Processes for converting low-quality hardwood to high value structural flakeboard panels and lumber have been developed. Based on this research, a $25 million flakeboard plant is being built in Louisiana.

--The truss-framed system for house construction developed by Forest Service research is now in production. Several contractors have tried this new construction technique and many others are interested. One builder has completed more than 200 homes and reports cost savings of up to 25 percent over conventional construction methods. This is a big step toward more affordable housing (see Figure 39). The Forest Service, through its State and Private Forestry program, is now working with the National Association of Home Builders to develop a design and construction manual.

Forest Engineering Research

The objective of Forest Engineering Research is to provide new engineering technology for economical and energy-efficient equipment and systems for forestry and land management operations including harvesting, regeneration, transportation, and environmental conservation. Examples of accomplishments are:

--Research results are providing improved specifications for forest road design and construction, and methods useful in predicting impacts of road construction. Sound information on construction/environmental interrelationships will enable better decisionmaking in logging and roadbuilding.

--A cooperative effort with industry has resulted in a new harvesting concept for small trees on steep slopes. Ground disturbance is minimal. In field trials, the machine functioned successfully for clearcutting and bunching operations in poletimber stands. This machine also has good potential for thinning and swampland harvesting operations.

International Forestry

The objective of International Forestry is to provide leadership, coordination, and direction for Forest Service cooperation and participation in forestry worldwide. Examples of accomplishments are:

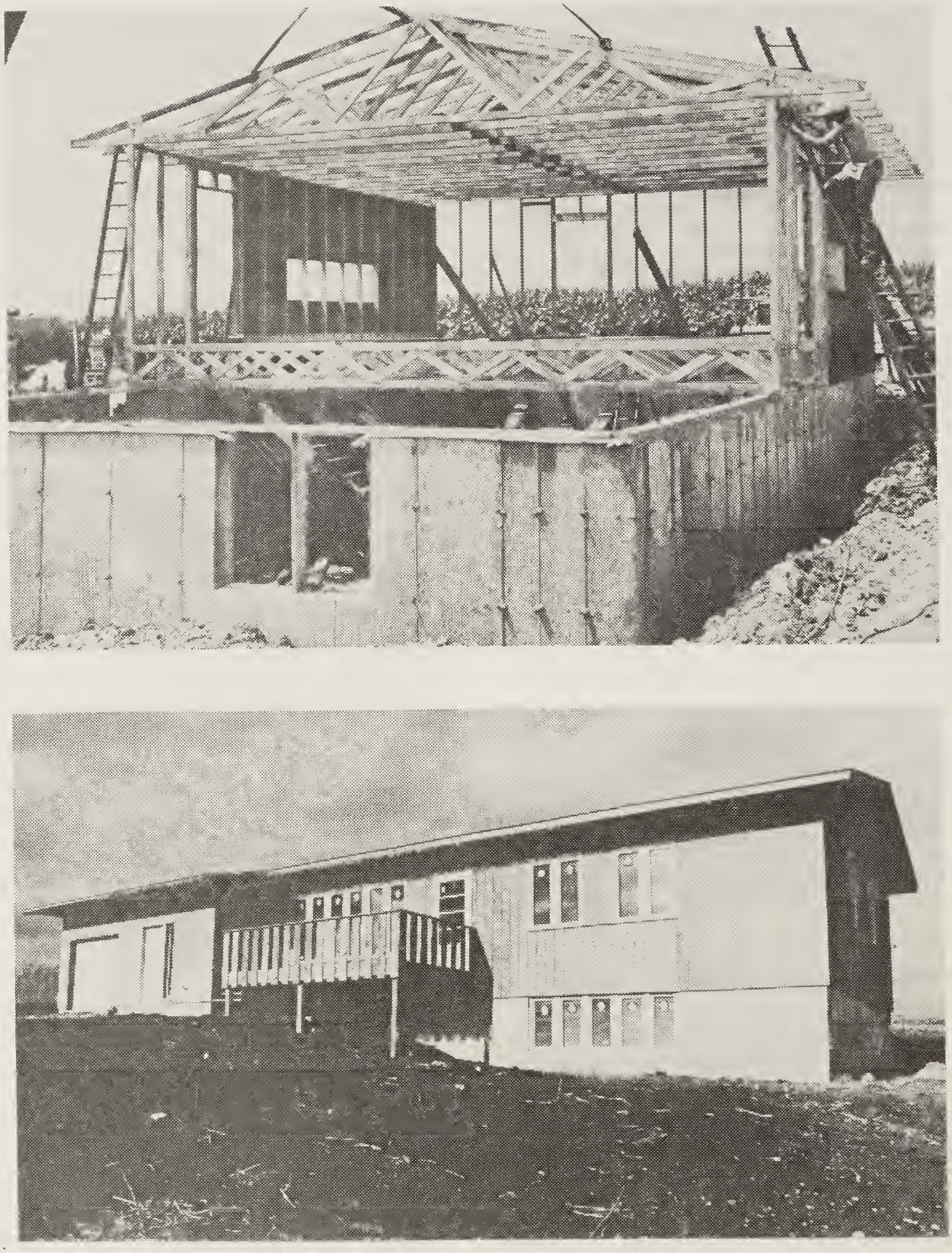


Figure 39. Forest Proucts Laboratory prototype house (upper photo) was erected in only 6 hours. Finished prototype (lower photo) looks like any conventional house.

--The Forestry Support Program developed by the Forest Service for the U.S. Agency for International Development (AID) is now operative. Among the key services is a computerized system of identifying the availability of forestry expertise for the major tropical forest areas of the world.

--The first full year of technical forestry exchanges with the People's Republic of China has culminated in successful completion of team visits to China to discuss forest genetics and tree improvement and integrated pest management. The reciprocal Chinese teams sent to the United States specialized in tree seed collection and storage and in forest products research.

--A significant event in scientific exchanges with the U.S.S.R. occurred in 1981 when a forest entomology team returned with a collection of insect parasites and predators which is now being tested for effectiveness against hardwood tree defoliating insects including the gypsy moth.

--Forest Service headquarters and field units provided 737 person-days of training to foreign nationals in 1981 sponsored by the U.S. Agency for International Development and the Food and Agriculture Organization of the United Nations (FAO). In addition, Forest Service units were host to 211 visitors from 42 foreign countries.

INTRODUCTION

Forest Service Administration provides support to all of the agency's programs. Administration activities include accounting, procurement, Human Resource Programs, law enforcement, management of Forest Service-owned facilities, and personnel management. These and other Administration activities are essential to producing the goods and services provided by the Forest Service.

HUMAN RESOURCE PROGRAMS

The goal of Human Resource Programs is to blend human and resource programs by providing employment opportunities to assist the Forest Service in its mission of managing and protecting the Nation's renewable resources. During fiscal year 1981, $127.2 million was allocated to the Forest Service to operate four major programs: Job Corps, Senior Community Service Employment Program, Youth Conservation Corps, and Young Adult Conservation Corps (see Table 62).

The work included campground and trail construction, tree planting, range fence construction, firefighting, timber stand improvement, and clerical support.

The Job Corps is a Department of Labor program with 18 Civilian Conservation Centers administered by the Forest Service under an interagency agreement.

Enrollees, who are disadvantaged 16- to 21-year old youth, receive room, board, clothes, education, job skills training, and a monthly allowance in lieu of wages. The primary purpose of the centers is to produce graduates who are able to find productive work, reenter school, or join the military. In fiscal year 1981, 88 percent of Job Corps graduates were successful in one of these three endeavors.

A total of $46.5 million was received in fiscal year 1981 to serve 8,000 youth (59 percent minorities and 4 percent women). The skills training resulted in 3,922 person-years of work valued at $15.4 million; $2.7 million of this was on National Forests.

The Forest Service, in cooperation with the Department of Labor, sponsors the Senior Community Service Employment Program. It offers part-time employment, with the associated work experience and skills training, to economically disadvantaged persons 55 and older who reside primarily in rural areas.

The Forest Service's interagency agreement for fiscal year 1980 provided $15.4 million, with which 4,140 persons were aided (19 percent minorities and 30 percent women). They did 2,185 person-years of work valued at $22.3 million. This meant the Government reaped a return of $1.44 for each dollar invested. The program funded in fiscal year 1981 will end on June 30, 1982. It is anticipated that 4,500 senior citizens will be aided with the $16.2 million budget.

The Youth Conservation Corps (YCC) provides summer employment for 15- through 18-year-olds from all segments of society and supplies environmental education as well. The Corps is jointly administered by the Departments of Agriculture and the Interior.

In fiscal year 1981, an estimated 2,034 young people participated in camps administered by the Forest Service (about 24 percent minorities and 46 percent women). Participants did 300 person-years of conservation work valued at about $4.5 million. For each YCC dollar invested, approximately $1.13 worth of work was accomplished.

The Young Adult Conservation Corps (YACC) provides year-round, labor-intensive conservation work to youth, aged 16 to 23, who are unemployed and out of school.

The program is administered under a tripartite agreement among the Departments of Agriculture, the Interior, and Labor.

During fiscal year 1981, the Forest Service provided employment for 18,617 enrollees (30 percent minorities and 35 percent women). They did 5,398 person-years of work worth $72 million. This represents a $1.20 return for each dollar spent.

The authorization for YACC will expire September 30, 1982. A total of $58.1 million of fiscal year 1981 funds has been deferred to effect the orderly closure of the program. The Forest Service share of this sum will be $20.1 million.

Volunteers in the National Forests, an unfunded program, allows groups and individuals to donate their time, talents, and knowledge to the enhancement of Forest Service activities. In fiscal year 1981, 16,399 persons volunteered (about 13 percent minorities and 33 percent women). They contributed 756 person-years of work valued at more than $8.2 million.

The Forest Service also serves as host for cooperative programs administered by State and local governments. These include college work study, vocational work study, work incentive, and programs authorized by the Comprehensive Employment and Training Act.

During the 1981 fiscal year, 4,724 persons participated (29 percent minorities and 37 percent women), doing 1,030 person-years of work worth $10 million.

OTHER PROGRAMS

Several programs and activities needed for agency operation are found throughout this report. Fiscal and personnel matters are discussed on pages 2 to 5, and law enforcement on page 10. Other accomplishments not discussed elsewhere follow.

Collection of Overdue Debts

Overdue and uncollectable debts have been a problem in National Forest administration. These debts are usually unpaid fines for timber theft, property damage, or starting fires on National Forests and Grasslands. Many efforts to reduce these debts were successful in 1981.

Major action included:

- Emphasis on charging interest on overdue debts at rates prescribed by the Treasury Department. This is a continuing effort which was begun in fiscal year 1980. Interest collections during 1981 amounted to more than $340,000 compared to only $33,000 in 1980.

- Categorizing overdue accounts by the length of time overdue and using aggressive followup at 30-day intervals. This is currently a manual process, but steps have been taken toward automation.

- Aggressive collection action on debts which remain delinquent. These actions include using IRS and other services to locate debtors, personal contact with the debtor, reducing payments by the Forest Service to account holders to offset their overdue debt, referral of claims to the Department of Justice or the General Accounting Office for collection, use of small claims courts when appropriate, and obtaining reasonable compromise settlements where full collection was not possible.

Figure 40 compares the total accounts receivable from the public, the amounts overdue, and the amounts written off as uncollectible for the last 4 years.

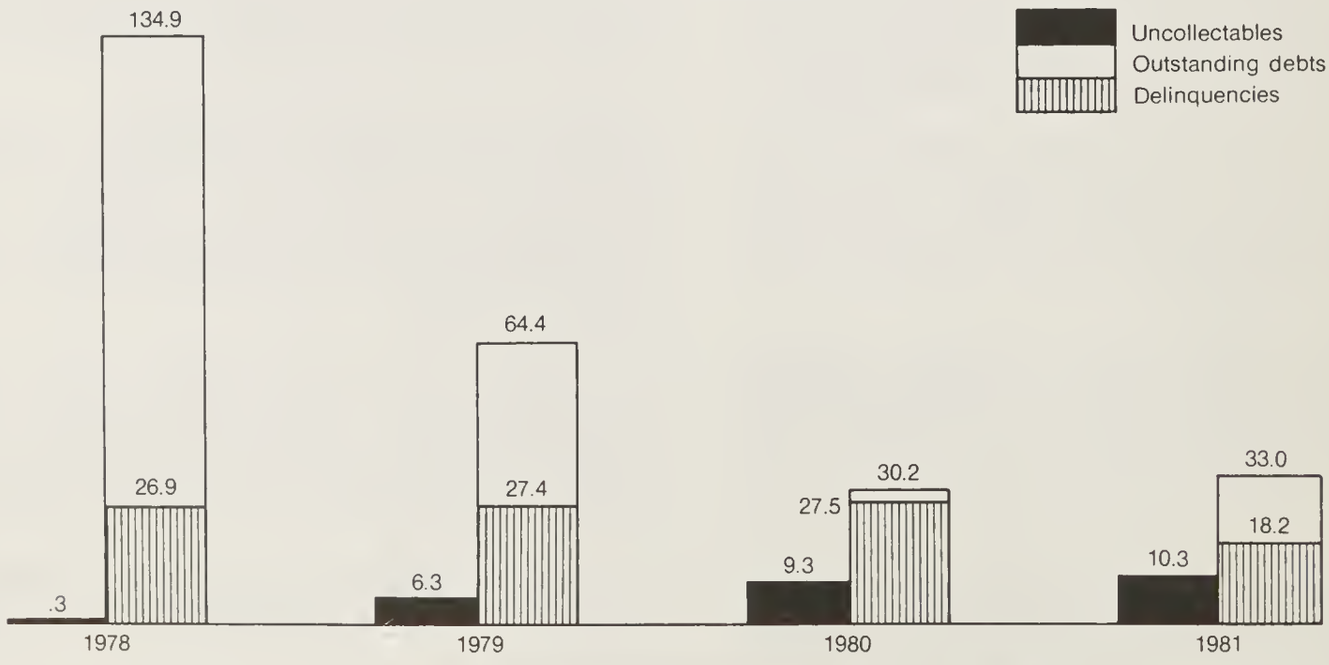
Aggressive attention to delinquent accounts in the last year resulted in a 33-percent reduction in overdue debts, while total debt rose slightly. This reduction was accomplished with only a 10-percent increase in write-offs over last year. The majority of the write-offs involved termination or compromise of trespass claims after legal review and court action. The majority of delinquent accounts also involve claims cases.

Regulation Reduction

The Forest Service has intensified efforts to streamline its operations by identifying and

Figure 40.

Delinquencies, Uncollectables and Outstanding Debts (As of September 30 of Selected Years)
(Million Dollars)



reducing burdensome Federal procedures. In addition, the Forest Service has identified requirements of other Federal agencies that either impose substantial paperwork burdens on the Forest Service or result in additional costs.

One result of this effort has been to expedite the ordering and delivery of Forest Service vehicles. For many years, the Forest Service has experienced repeated delays in deliveries of purchased vehicles. This has necessitated costly rentals. In fiscal year 1981, the National Buying Division of the General Services Administration accepted Forest Service recommendations for improving the ordering and delivery of motor vehicles.

Conservative estimates reveal that these changes will save the Forest Service $3 million by the 1982 field season by substantially reducing the number of vehicles that must be rented.

Capital Investment Study

The Forest Service owns and maintains 12,377 major buildings valued at $1.7 billion. Most are used in the management of NFS lands, and 5 percent are used by Research.

In 1981 a survey was conducted to determine the condition of Forest Service buildings. The survey revealed that 46 percent of these facilities are more than 36 years old (see Figure 41). Most of these older buildings are functionally obsolete and, consequently, are not being used as orginally intended. This information will be used to make better use of current and future construction and maintenance funds.

Energy Conservation

The National Energy Conservation Policy Act requires that energy use in existing Federal buildings be reduced 20 percent by 1985; new buildings are to use 45 percent less energy than in 1975. In response to this, the Forest Service energy conservation retrofit program is progressing on schedule. This program is designed to decrease energy consumption by doing such things as insulating, caulking, lowering thermostats, and modifying business hours. Approximately 70 percent of the surveys and analysis of conservation opportunities was completed by September 30; the remainder was scheduled for completion by December 31, 1981. Some minor retrofitting has been accomplished concurrently with the surveys. Since the start of this effort in 1975, an estimated 15 percent of all Forest Service owned buildings have been retrofitted.

Figure 41.

Age Class of Forest Service-Owned Buildings

(As of September 30, 1981)

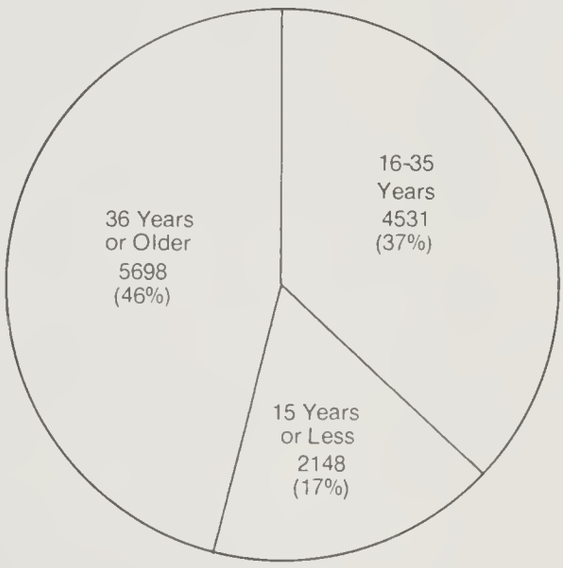


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Table 1. Statement of receipts--fiscal year 1981 (dollars in thousands)

Receipts	National Forests	Oregon and California grant lands	National Grasslands & L.U. Areas	Other	Total
Receipts from Sale and Use of Forest Resources:					
Timber and forest products	553,849	23,787	31	--	577,667
Grazing	13,272	10	1,607	--	14,889
Land uses	2,123	13	286	--	2,422
Recreation	19,407	--	9	--	19,416
Power	477	--	8	--	485
Mineral leases and permits	17,375	--	44,705	--	62,080
Subtotal	606,503	23,810	46,646	--	676,959
Receipts from Deposits for Expenditures on National Forests:					
Timber sale area betterment	124,860	--	--	--	124,860
Timber salvage sales	11,884	--	--	--	11,884
Brush disposal	43,844	--	--	--	43,844
Restoration of improvements	97	--	--	--	97
Cooperative work	27,525	--	--	--	27,525
Subtotal	208,210	--	--	--	208,210
Other Receipts:					
Misc. (sale, rents, etc.)	--	--	--	4,052	4,052
Golden Eagle passports	--	--	--	4	4
Sale of personnal property	--	--	--	40	40
Cooperative research	--	--	--	1,079	1,079
Royalties from sale of Smokey Bear and Woodsy Owl products	--	--	--	96	96
Acquisition of lands to complete land exchanges 1/	--	--	--	532	532
Subtotal	--	--	--	5,803	5,803
Other Income:					
Estimated collections by Dept. of Energy for power licenses on Public Domain National Forest land	542	--	--	--	532

Table 1 (con.).--Statement of Receipts--fiscal year 1981 (dollars in thousands)

	National Forests	Oregon and California grant lands	National Grasslands & L.U. Areas	Other	Total
Estimated collections by Dept. of Interior for mineral leases on Public Domain National Forest land	63,000	--	--	--	63,000
Value of roads built by timber purchasers in lieu of cash	188,654	--	--	--	188,654
Subtotal	252,196				252,196
Total	1,066,909	23,810	46,646	5,803	1,143,168
Other Net Deposits: 1/					
Moneys advanced on active Timber sales					
Bal. from prev. year	268,574	--	--	--	268,574
Deposited curr. year	800,322	--	--	--	800,322
Trans. to other accts.	-837,446	--	--	--	-837,446
Bal. on deposit	231,450	--	--	--	231,450
Amounts Deposited Pending Disposition					
Bal. from prev. year	7,780	--	--	--	7,780
Deposited curr. year	21,317	--	--	--	21,317
Trans. to other Accts.	-16,725	--	--	--	-16,725
Bal. on Deposit	12,372	--	--	--	12,372
Subtotal	243,822				243,822
Grand Total	1,310,731	23,810	46,646	5,803	1,386,990

1/ First year of Reporting.

Table 2. Statement of receipts--fiscal years 1977-1981 (dollars in thousands)

	1981	1980	1979	1978	1977
Receipts from Sale and Use of Forest Resources:					
Timber and forest products	$ 577,667	$ 625,407	$ 827,603	$ 723,514	$ 652,050
Grazing	14,889	15,850	12,520	11,037	11,443
Land uses	2,422	2,336	2,117	1,864	1,604
Recreation	19,416	18,317	16,462	13,981	11,679
Power	485	488	429	388	366
Mineral leases and permits	62,080	40,472	21,878	14,756	14,426
Subtotal	676,959	702,870	881,009	765,540	691,568
Receipts from Deposits for Expenditures on National Forests:					
Timber sale area betterment	124,860	116,576	111,452	65,592	106,529
Timber salvage sales	11,884	14,530	12,387	8,397	130
Brush disposal	43,844	42,374	42,739	39,652	39,078
Restoration of improvements	97	198	33	29	25
Cooperative work	27,525	29,985	27,12[illegible]	21,095	19,492
Subtotal	208,210	203,663	193,733	134,765	165,254
Other Receipts:					
Misc. (sale, rents, etc.)	4,052	-2,375	8,850	3,801	907
Golden Eagle passports	4	5	4	5	6
Sale of personnal property	40	47	108	51	81
Cooperative research	1,079	587	1,086	1,144	832
Royalties from Sale of Smokey Bear and Woodsy Owl products	96	102	107	215	219
Acquisition of lands to complete land exchanges 1/	532	--	--	--	--
Subtotal	5,803	-1,634	10,155	5,216	2,045
Other Income:					
Estimated collections by Dept. of Energy for power licenses on Public Domain National Forest land	542	86	614	474	244

Table 2 (con.). Statement of receipts--fiscal years 1977-1981 (dollars in thousands)

Receipts	1981	1980	1979	1978	1977
Estimated collections by Dept. of Interior for mineral leases on Public Domain National Forest land 2/	$ 63,000	$ 219,264 (47,000)	$ 162,232 (35,000)	$ 87,210 (34,200)	$ 79,297 (16,000)
Value of roads built by timber purchasers in lieu of cash	188,654	164,226	154,727	124,181	123,283
Subtotal 2/	252,196	383,576 (211,312)	317,573 (190,341)	211,865 (158,855)	202,824 (139,527)
Other Net Deposits: 3/					
Moneys Advanced on Active timber sales:					
Bal. from prev. year	268,574	--	--	--	--
Deposited curr. year	800,322	--	--	--	--
Trans. to other accts.	-837,446	--	--	--	--
Bal. on deposit	231,450	--	--	--	--
Amounts deposited pending disposition					
Bal. from prev. year	7,780	--	--	--	--
Deposited curr. year	21,317	--	--	--	--
Trans. to other accts.	-16,725	--	--	--	--
Bal. on deposit	12,372	--	--	--	--
Subtotal	243,822	--	--	--	--
Total 2/	1,386,990 4/	1,288,475 (1,116,211)	1,402,470 (1,275,238)	1,117,386 (1,064,376)	1,061,691 (998,394)

1/ Includes receipt account adjustment of $2,700,000 from previous year.
2/ Department of Interior procedures for crediting mineral lease collections on National Forest System lands was revised in 1981. Previous years are adjusted and shown within parentheses.
3/ First year of reporting.
4/ For comparison with past years use 1,143,168 (total receipts of 1,386,990 less other net deposits of 243,822). Other net deposists not reported for previous years.

Table 3. **Statement of expenditures--fiscal year 1981** (dollars in thousands)

	Total	Work for other Public Agencies (Reimbursables)
National Forest System:		
Protection and management	$ 708,091	$ 13,035
Fighting forest fires	106,153	7,097
Cooperative work for others	27,181	27,181
Cooperative law enforcement	5,110	--
Flood prevention and watershed protection	3,014	7
Restoration of forest lands & improvements	162	162
Restoration of timber stand improvement	104,231	218
Timber sale betterment (K-V)	92,782	13
Brush disposal	43,752	30
Timber salvage sales	8,842	1
Oregon-California Grant Lands	3,458	--
Land planning Alpine Lakes Area	1	--
Construction and Operation of recreation facilities	8	--
Rangeland improvements	6,939	--
Construction of facilities	25,313	685
Acquisition of lands, Forest Service	3,512	--
Acquisition of lands, land and water conservation funds	54,683	--
Construction of forest roads and trails	255,316	468
Timber purchaser roads constructed by the Forest Service	46,217	--
Timber purchaser road construction	201,893	--
Restoration of roads, Federal highway funds	10,190	--
Roads and trails maintenance	92,726	39
Highland scenic highway	66	66
Mount St. Helens emergency activities	10,516	--
Tongass timber supply fund	23,162	--
Subtotal	1,833,318	49,002
Research:		
Forest research	129,548	4,570
Construction of research facilities	1,240	315
Cooperative research	1,201	1,201
Gifts, donation, and bequests for forest and rangeland research	68	68
Energy security reserve, DOE	17	17
Subtotal	132,074	6,171

Table 3 (con.). **Statement of expenditures--fiscal year 1981**
(dollars in thousands)

	Total	Work for other Public Agencies (Reimbursables)
State and Private Forestry:		
Cooperation and general forestry assistance	$ 72,777	$ 707
Insect and disease management	2,878	32
Resource conservation and development	857	--
Rural community fire protection grants	3,471	--
River basins	1,942	22
Flood prevention and watershed planning	1,972	--
Licensee programs Smokey Bear and Woodsy Owl	90	--
FIP, ACP and miscellaneous	3,671	335
Subtotal	87,658	1,096
Human Resource Programs:		
Youth conservation corps	4,492	1
Job corps	46,360	491
YACC	57,741	98
Senior citizens and micellaneous	16,487	2
Subtotal	125,080	592
Total	2,178,130	56,861
Internal Equipment and Supplies Service:		
Working Capital Fund	85,137	85,137
Grand Total	2,263,267	141,998

Table 4. Statement of expenditures--fiscal years 1977-1981 (constant 1981 dollars in millions)

	1981	1980	1979	1978	1977
National Forest System	1,833.3	1,886.8	1,958.3 1/	1,811.0	1,865.8
Forest Research	132.1	129.4	146.4	151.9	133.8
State and Private Forestry	87.7	99.4	115.9 2/	104.2	77.9
Human Resource Programs	125.1	170.9	199.7	214.1	46.1
Working Capital Fund	85.1	2/	2/	2/	2/
Total	2,263.3	2,286.4 3/	2,420.4 3/	2,281.2	2,123.6

1/ On behalf of the National Forest System, State and Private Forestry expended $8.7 million. This amount is included in the State and Private Forestry figure.

2/ Not available as separate item.

3/ Does not add due to rounding.

Note: CPI-U, all items, used for 1978-1981; CPI-W, all items, used for 1977.

Table 5. Distribution of permanent full-time employees by occupation--fiscal years 1975-1981

Occupation	Series	Sept. 1981	July 1980	July 1979	Dec. 1977	July 1975	Percent Change 1975-81
Professional							
Entomologist	414	166	170	167	167	153	8%
Plant Pathologist	434	98	95	95	95	97	1%
Range Conservation	454	314	294	263	262	260	21%
Forester	460	4,606	4,686	4,659	4,652	4,616	0%
Soil Scientist	470	211	210	195	196	173	22%
Wildlife Biologist	486	249	214	180	176	119	109%
Accountant	510	124	123	127	127	123	1%
Landscape Architect	807	185	188	172	172	170	9%
Civil Engineer	810	940	946	936	935	966	-3%
Hydrologist	1315	161	154	133	133	107	50%
Forest Products Tech	1380	101	106	108	117	117	-14%
Education & Vocational Training	1710	84	92	107	106	126	-33%
Other Professional		1,039	811	838	663	593	75%
Subtotal		8,278	8,089	7,980	7,801	7,620	9%
Administrative							
Personnel Management	201	236	200	190	191	164	44%
Computer Specialist	334	267	212	187	187	126	112%
Administrative Officer	341	187	199	208	208	236	-21%
Contract & Procurement	1102	302	285	242	242	225	34%
Training Instructor	1712	83	89	105	104	112	-26%
Other Administrative		1,430	1,311	1,240	1,240	1,149	24%
Subtotal		2,505	2,296	2,172	2,172	2,012	25%
Technical							
Social Services	186	133	273	154	153	145	-8%
Biological Technician	404	179	183	175	173	145	23%
Forestry Technician	462	3,586	3,969	3,800	3,765	3,182	13%
Engineering Technician	802	1,437	1,444	1,408	1,404	1,256	14%
Construction Inspector	809	152	183	221	220	256	-41%
Surveying Technician	817	129	138	129	128	115	12%
Electronics Technician	856	108	181	132	139	148	-27%
Cartoraphic Technician	1371	142	156	142	141	116	22%
Purchasing	1105	168	169	171	170	142	18%
Other Technical		1,448	713	946	609	508	185%
Subtotal		7,482	7,409	7,150	6,902	6,013	24%

Table 5 (con.). Distribution of permanent full-time employees by occupation--fiscal years 1975-1981

Occupation	Series	Sept. 1981	July 1980	July 1979	Dec. 1977	July 1975	Percent Change 1975-81
Clerical							
Personnel Clerical	203	291	284	307	301	263	11%
General Clerical and Adm.[1]	301	438	1,107	1,208	1,197	1,006	-56%
Secretary	318	451	373	351	350	340	33%
Clerk-Typist	322	261	360	367	366	413	-37%
General Accounting	501	36	99	111	111	108	-67%
Voucher Examining	540	71	121	117	114	124	-43%
Other Clerical		455	400	723	517	663	-31%
Subtotal		2,003	2,744	3,184	2,956	2,917	-31%
Other[2]		1,061	883	1,218	808	1,006	5%
Total		21,329	21,421	21,832	20,639	19,568	9%

1/ Includes clerical and administrative until 1980; 1981 clerical only.
2/ Includes trades and labor occupations such as laborers, maintenance workers, equipment operators, and guards.

Table 6. **Work force by program and occupational category--selected years** (number of employees at end of fiscal year)

	1981	1980	1975
Research:			
Clerical	665	627	460
Technical	1,096	968	528
Administrative	275	302	246
Professional	1,346	1,452	1,408
Subtotal	3,382	3,349	2,642
State and Private Forestry:			
Clerical	157	163	81
Technical	82	80	31
Administrative	46	42	28
Professional	366	347	256
Subtotal	651	632	396
National Forest System:			
Clerical	5,884	6,361	6,411
Technical	29,116	30,036	28,774
Administrative	3,037	2,370	1,860
Professional	10,191	9,082	7,562
Subtotal	48,228	47,849	44,607
Total	52,261	51,830	47,645

Table 7. **Distribution of work force by tour of duty as reported in July of selected years** (number of employees)

	1981	1980	1979	1977	1975
Permanent full-time	21,543	21,421	21,832	19,715	19,568
Other permanent	15,326	15,815	12,858	14,004	12,115
Temporary	19,053	24,043	25,450	20,480	18,076
Total	55,922	61,279	60,140	54,199	49,759

Table 8. Summary of National Forest System accomplishments compared to RPA and funded output levels--fiscal year 1981

		Unit of measure 1/	Output Level			Accomplishment Comparison	
			RPA	Funded	Accomplished	Change From Funded Level	Percent of Funded Level
Resource:							
Recreation	Visitor use	MM RVD's	227	226	235.7	+9.7	104
Wilderness	Maintenance	MM acres	33	25.1	25.1	--	100
Wildlife and Fish	Habitat improvement	M equivalents	1,302	2,093 2/	2,305 2/	+212	110
Range	Permitted livestock	MM AUM's	10.0	9.9	9.8	--	99
Timber	Sales offering	B bd.ft.	11.9	11.9	12.2	+0.3	103
	Silvicultural exams	MM acres	7.0	6.7	7.4	+0.7	110
	Reforestation						
	Appropriated funds	M acres	215	195.1	217.9	+22.8	112
	K-V funds	M acres	245	199.9	204.8	+4.9	102
	Timber stand improvement						
	Appropriated funds	M acres	220	234.2	257.0	+22.8	110
	K-V funds	M acres	118	135.4	139.4	+5.6	103
Soil and water	Resource improvement	M acres	8	3.6	4.5	+0.9	125
Minerals	Leases and permits	Operating plans	17,000	19,214	25,061	+5,847	130
Support:							
	Trail construction/ reconstruction	Miles	515	217.5	313.1	+96.1	144
	Road construction						
	Appropriated funds	Miles	1,305	621	1,217	+596	196
	Purchaser credit	Miles	11,170	9,535	8,835 3/	-700	93
	Fuel management	M acres	302	298.9	323.2 4/	+24.3	108
	Land acquired and exchanged	M acre	130.0	190.7	217.8	+27.1	114
	Landline location	M miles	5.9	6.0	6.8	+0.8	113

1/ M=thousand, MM=million, B=billion.
2/ Includes Knutson-Vandenberg and support acre equivalents.
3/ Accomplishment includes 1,500 miles turned back to Forest Service for construction.
4/ Does not include 22.5 acres done by Human Resource Programs and 445.6 acres by using Brush Disposal funds.

Table 9. National Forest System 1/ funding--fiscal years 1979-1981 (constant 1981 dollars in thousands)

	1981				
	Actual	RPA	Percent of RPA	1980	1979
Land and Resource Protection:					
Minerals area management	19,561	18,875	104	17,312	14,574
Land management	24,536	23,524	104	25,615	24,468
Landline location	31,129	27,665	113	24,040	20,752
Maintenance of facilities	14,867	14,135	105	14,162	20,893
Payments to Employees Compensation Fund	7,000	7,000	100	6,410	6,502
Forest fire protection	174,321	164,715	106	175,075	163,453
Fighting forest fires	104,275 1/	4,275	100 1/	100,518 1/	73,064
Cooperative law enforcement	5,184	6,794	76	5,018	5,393
Forest road maintenance	77,729	78,892	99	79,199	82,228
Forest trail maintenance	14,452	13,896	104	12,781	14,001
Subtotal	473,054	359,771	104 1/	460,130	425,327
Renewable Resoure Management and Utilization:					
Sales administration and management	197,837	192,491	103	194,802	200,705
Reforestation and stand improvement	104,858	98,787	106	110,590	112,618
Recreation use	116,631	114,349	106	120,124	116,105
Wildlife and fish habitat management	41,701	42,579	90	43,326	35,324
Range management	36,025	34,328	105	39,463	38,875
Soil and water management	38,790	38,946	100	52,761	43,453
Subtotal	535,842	521,480	103	561,066	547,080
Mount St. Helens	13,442	--	--	27,233	--
Construction and Land Acquisition:					
Construction of facilities	22,030	27,726	79	31,689	37,410
Forest road construction	203,441	125,007	163	177,932	168,564
Forest trail construction	4,068	6,257	65	9,008	10,019
Forest roads purchaser construction	210,000	210,000	100	246,269	289,152
Land acquisition Weeks Act	2,514	4,425	57	2,198	4,171
Pollution abatement	--	--	--	--	1,385
Mount St. Helens	22,607	--	--	--	--
Subtotal	464,660	373,415	118 2/	467,096	510,701
Youth Conservation Corps	-- 3/	55,000	--	59,692	71,259
Acquisition of Lands for National Forests, Special Acts	754	754	100	354	457
Acquisition of Lands to Complete Land Exchange	446	446	100	169	284
Rangeland Improvements	6,940	6,800	102	6,427	6,413
Permanent Appropriations	386,641	520,150	74	480,?69	488,372
Trust Funds	145,000	96,400	150	105,239	124,705
Total	2,026,779	1,934,216	98 4/	2,167,675	2,174,598

1/ Includes supplemental appropriations; percent of RPA calculated without supplemental appropriations.
2/ Excludes Mount St. Helens
3/ Account transfered to the Department of the Interior.
4/ Excludes Mount St. Helens and supplemental fire appropriations.

Table 10. Planned and approved minerals operating plans by Region--fiscal year 1981

Region	Planned (Budget allocation)	Accomplished
Northern	2,207	3,738
Rocky Mountain	2,509	2,626
Southwestern	1,808	2,103
Intermountain	2,771	3,157
Pacific Southwest	1,900	2,463
Pacific Northwest	3,193	4,419
Southern	2,756	2,785
Eastern	1,331	3,588
Alaska	292	182
Total	18,767	25,061

Table 11. Energy mineral workload and production--fiscal years 1978-1981

	Acres under lease 1/ (millions)	Energy-related operating plans (number)	Energy-related operating plan backlog (number)	Oil production (barrels)	Gas production (m. cu. ft.)	Coal production (tons)
1978	23.0	8,700	--	9,280,715	121,200,000	5,100,000
1979	24.9	9,801	6,000	11,130,200	213,250,000	6,240,000
1980	25.0	13,980	7,300	12,200,000	213,800,000	7,100,000 1/
1981	**25.2**	**15,037**	**4,504**	**13,350,000 1/**	**214,100,000 1/**	**8,000,000 1/**

1/ Estimates

Table 12. Lands administered by the Forest Service as of September 30, 1981 (acres)

State	National Forests, purchase units, research areas, & other areas	National Grasslands	Land Utilization Projects	Total
Alabama	644,392	--	40	644,432
Alaska	23,167,542	--	--	23,167,542
Arizona	11,271,055	--	--	11,271,055
Arkansas	2,477,943	--	--	2,477,943
California	20,360,928	--	19,222	20,380,150
Colorado	13,818,076	612,137	560	14,430,773
Connecticut	10	--	--	10
Flordia	1,098,071	--	--	1,098,071
Georgia	855,096	--	9,340	864,436
Hawaii	1	--	--	1
Idaho	20,374,925	47,659	--	20,422,584
Illinois	261,357	--	--	261,357
Indiana	187,689	--	324	188,013
Kansas	--	108,175	--	108,175
Kentucky	670,340	--	--	670,340
Louisiana	597,672	--	--	597,672
Maine	50,977	--	260	51,237
Michigan	2,756,370	--	999	2,757,369
Minnesota	2,799,474	--	--	2,799,474
Mississippi	1,141,247	--	--	1,141,247
Missouri	1,452,807	--	13,104	1,465,911
Montana	16,762,855	--	--	16,762,855
Nebraska	257,405	94,334	--	351,739
Nevada	5,147,008	--	--	5,147,008
New Hampshire	705,168	--	--	705,168
New Mexico	9,108,607	136,412	240	9,245,259
New York	--	--	13,232	13,232
North Carolina	1,212,890	--	--	1,212,890
North Dakota	796	1,104,749	--	1,105,545
Ohio	176,775	--	--	176,775
Oklahoma	247,585	46,300	--	293,885
Oregon	15,508,977	106,138	856	15,615,971
Pennsylvania	509,388	--	--	509,388
Puerto Rico	27,846	--	--	27,846
South Carolina	609,656	--	--	609,656
South Dakota	1,134,633	863,139	--	1,997,772
Tennessee	623,540	--	--	623,540
Texas	665,070	117,554	--	782,624
Utah	8,045,791	--	--	8,045,791
Vermont	290,338	--	--	290,338
Virgin Islands	147	--	--	147
Virginia	1,627,082	--	--	1,627,082
Washington	9,052,926	--	725	9,053,651
West Virginia	968,985	--	--	968,985
Wisconsin	1,499,457	--	160	1,499,617
Wyoming	8,682,170	572,364	--	9,254,534
Total	186,851,067	3,808,961	59,062	190,719,090

Table 13. Land acquisition and exchange--fiscal year 1981

	Acres	Cases	Value
Purchase	110,560	270	$ 50,432,529
Exchange	106,105	163	108,808,591
Donation	1,224	12	654,146
Special Studies 1/	7,070	1	3,500,000
Total	224,959	446	163,395,266

1/ Land transfers, interchanges, boundary modifications

Table 14. Miles of landline location by Region--fiscal year 1981

Region	Total boundary	1981 target	1981 accomplishment	Accomplished to date
Northern	30,664	466	490.0	2,685.0
Rocky Mountain	51,433	324	346.8	1,664.0
Southwestern	19.,199	387	410.0	3,725.0
Intermountain	28,659	210	226.6	2,136.3
Pacific Southwest	29,577	855	932.8	3,909.8
Pacific Northwest	25,726	1,185	1,659.0	5,613.3
Southern	42,280	1,733	1,752.1	31,316.1
Eastern	42,742	764	815.7	3,194.5
Alaska	1,536	75	136.9	413.7
Total	271,816	5,999	6,769.9	54,657.7

Table 15. Fuels treatment accomplished by appropriation--fiscal year 1981 (acres)

Region	Target (Forest Fire protection funds)	Accomplishment			
		Forest fire protection funds	Human Resource funds	Brush disposal funds	Total
Northern	16,210	18,137	1,613	26,000	45,750
Rocky Mountain	8,000	8,002	25	9,050	17,077
Southwestern	15,800	25,246	383	38,840	64,469
Intermountain	15,400	15,809	1,365	22,230	39,404
Pacific Southwest	23,000	22,793	2,067	6,000	30,860
Pacific Northwest	11,779	24,540	2,716	342,700	369,956
Southern	205,000	204,844	13,615	0	218,459
Eastern	3,689	3,878	691	0	4,569
Alaska	0	0	0	798	798
Total	298,878	323,249	22,475	445,618	791,342

1/ No fuels target in Alaska Region.

Table 16. Timber offered, sold, and harvested--fiscal years 1977-1981

	1981	1980	1979	1978	1977
Offered:					
Volume (billion board feet)	12.2	12.4	12.4	12.2	11.0
Sold:					
Number of sales	91,672	89,337	64,135	54,373	44,466
Volume (billion board feet)	11.5	11.4	11.3	11.0	9.9
Value (million dollars)	$1,768	1,969	1,962	1,328	987
Harvested:					
Volume (billion board feet)	8.0 1/	9.1	10.4	10.1	10.5
Value (million dollars)	$ 577 1/	731	968	854	732

1/ Preliminary.

Table 17. Timber offered, sold and harvested by Region--fiscal years 1979-1981 (million board feet)

	1981			1980			1979		
	Offered	Sold	Harvest 2/	Offered	Sold	Harvest	Offered	Sold	Harvest
Northern	1,145.0	973.3	783.9	1,192.3	1,133.2	835.6	1,259.8	1,006.2	994.4
Rocky Mountain	401.3	403.9	273.9	411.2	323.5	250.0	443.4	362.1	287.9
Southwestern	464.2 1/	409.8	310.9	443.2 1/	334.7	365.4	435.0 1/	365.4	338.8
Intermountain	424.3 1/	314.8	323.4	456.7 1/	363.8	306.2	463.6 1/	334.3	433.7
Pacific Southwest	1,849.0	1,847.4	1,229.2	1,915.2	2,029.8	1,450.3	2,096.7	2,063.5	1,817.8
Pacific Northwest	5,488.1	5,480.9	3,125.9	5,377.4	5,126.4	3,628.7	5,177.7	5,038.2	4,528.7
Southern	1,240.5	1,219.3	1,141.1	1,331.3	1,281.6	1,297.8	1,252.4	1,166.7	1,014.4
Eastern	688.3	643.7	559.3	728.3	606.2	562.6	653.8	584.9	530.8
Alaska	546.2 1/	198.7	288.6	579.3 1/	199.6	451.2	649.6 1/	409.1	430.4
Total	12,246.9	11,491.8	8,036.2	12,434.9	11,398.8	9,147.8	12,432.0	11,330.4	10,376.9

1/ Includes long-term sales volume prepared.

2/ Preliminary.

Table 18. Timber sold and harvested by State--fiscal year 1981

State	Timber sold			Timber harvested 2/	
	Sales (number)	Volume (MBF)	Value ($1,000)	Volume (MBF)	Value 3/ ($1,000)
Alabama	204	75,373	466.2	79,004	5,450.8
Alaska	100	198,734	7,628.9	288,615	6,683.3
Arizona	7,697	268,386	27,750.6	179,813	12,764.0
Arkansas	1,188	201,198	22,168.8	165,809	10,260.4
California	17,034	1,847,361	296,703.0	1,229,237	131,572.0
Colorado	3,042	175,169	1,183.6	128,361	1,342.6
Florida	145	103,352	6,427.8	95,824	4,434.9
Grorgia	414	47,263	2,836.6	60,073	3,224.7
Idaho	13,193	674,397	31,925.6	689,012	22,231.2
Illinois	47	10,963	253.8	3,210	96.4
Indiana	61	10,715	651.9	9,804	502.3
Kentucky	227	26,689	666.8	25,434	623.3
Louisana	317	141,819	18,879.2	101,006	8,342.8
Maine	31	12,120	375.6	8,293	227.5
Michigan	855	150,135	2,605.4	166,011	2,557.3
Minnesota	299	134,793	2,282.5	109,325	1,000.9
Mississippi	455	213,780	24,442.7	211,828	20,576.8
Missouri	886	62,593	1,864.3	57,764	1,940.5
Montana	2,875	523,606	30,234.6	409,218	19,640.2
Nebraska	7	46	1.0	46	1.0
Nevada	968	559	8.5	975	9.2
New Hampshire	57	27,783	440.3	21,254	380.1
New Mexico	18,919	141,456	7,697.8	75,063	5,303.6
New York	159	183	3.4	286	18.1
North Carolina	3,060	72,494	2,513.6	67,401	1,772.3
Ohio	72	10,041	331.0	8,520	300.3
Oklahoma	113	24,414	1,911.0	29,911	2,168.1
Oregon	6,614	3,760,664	947,377.9	2,056,041	335,466.9
Pennsylvania	155	62,408	5,657.7	47,233	3,361.7
South Carolina	245	107,442	8,539.4	151,843	10,853.9
South Dakota	197	130,969	1,320.3	74,159	947.3
Tennessee	382	34,774	503.9	27,316	335.2
Texas	555	109,109	19,774.2	73,548	10,036.2
Utah	2,741	57,333	420.4	43,967	1,308.9
Vermont	120	17,508	457.1	8,771	289.9
Virginia	864	62,642	616.6	52,468	458.6
Washington	5,415	1,720,214	282,125.5	1,069,841	91,367.7
West Virginia	272	33,651	1,011.6	10,568	277.8
Wisconsin	304	109,754	1,727.1	107,879	1,528.0
Wyoming	1,383	129,911	1,767.0	91,509	1,265.7
Total	91,672	11,491,801	1,767,749.4	8,036,240	720,922.5

1/ MBF = thousand board feet.
2/ Preliminary.
3/ Includes K-V and salvage sale receipts.

Table 19. **Uncut timber volume under contract by Region--fiscal years 1977-1981** (volume in million board feet local scale with long term sales removed)

Region	1981 1/	1980	1979	1978	1977
Northern	3,325	3,194	2,952	2,936	3,048
Rocky Mountain	1,057	1,034	885	891	930
Southwestern	995	842	842	800	763
Intermountain	750	942	913	1,007	1,110
Pacific Southwest	5,884	5,835	5,150	5,125	1,960
Pacific Northwest	16,295	14,446	13,943	12,486	12,032
Southern	1,988	1,910	1,926	2,231	2,156
Eastern	1,937	1,945	1,830	1,810	1,990
Alaska	440	344	251	601	441
Total 2/	32,671	30,495	28,692	27,887	27,430

1/ All long term sales total an additional 10,816 million board feet.

2/ Estimated.

Table 20. Timber funding--fiscal years 1979-1981 (million dollars)

	1981	1980	1979
Sales preparation	$ 139.8	138.8	134.0
Sales administration	58.0	40.0	35.0
Reforestation and timber stand improvement	104.9	101.5	94.8
Support from the resource areas	66.9	58.0	36.0
Timber roads to produce budget year outputs	186.9	213.8	152.3
Timber roads to sustain budget year outputs in following year	55.0	34.4	57.1
roads, purchaser construction	210.0	226.1	243.5
Brush disposal	40.6	40.5	42.7
Purchaser roads constructed by Forest Service	21.0	15.0	36.0
Timber salvage sales	11.2	11.0	15.4
Tongass timber supply fund	25.0	--	--
Knutson-Vandenberg	115.0	75.0	71.4
Total	1,034.3	954.1	918.2

Table 21. Timber receipts--fiscal year 1979-1981 (million dollars)

	1981	1980	1979
Sale and use of timber and forest products	577.7	625.4	827.6
Timber sale area betterment	124.9	116.6	111.5
Timber salvage sales	11.9	14.5	12.4
Brush disposal	43.8	42.4	42.7
Value of roads built by timber purchasers in lieu of cash	188.6	164.2	154.7
Total	946.9	963.1	1,148.9

Table 22. Timber sale costs and returns for selected timber sales--fiscal year 1981

	Group 1/				
	One	Two	Three	Four	Five
Region National Forest	Pacific SW Sequoia	Southwestern Carson	Alaska Tongass	Northern Lolo	Northeastern Monongahela
Volume Sold (MBF) 2/	12,050	8,360	3,040	1,670	2,773
Government Costs ($1,000):					
Timber resource	50	65	69	29	17
Transportation system	298	44	190	27	21
Other resources	9	9	14	10	2
Total	357	118	273	66	40
Returns to Government ($1,000):					
Stumpage receipts (including stand improvement)	1,152	676	30	44	35
Deposits	383	150	214	39	100
Value of constructed road access	--	--	--	--	--
Total	1,535	826	244	83	135
Average per MBF:					
Expenditures	29.63	14.11	89.88	39.52	14.14
Returns	127.39	98.80	80.26	49.70	48.76
Returns/Expen. ratio	4.30	7.00	0.89	1.26	3.45

1/ Group	Sale preparation and development costs	Returns to the Government
One	Cost lower than average ($38.02 per MBF).	Returns 3 to 5 times higher than costs.
Two	Cost low to high.	Returns 5 to 10 times higher than costs.
Three	Costs higher than average.	Returns lower than costs.
Four	Costs moderate to average for all sales.	Returns 1 to 3 times higher than costs.
Five	Costs are low.	Returns are at a minimum but greater than costs.

2/ MBF = thousand board feed

Table 23. Reforestation accomplishments by funding source--fiscal year 1977-1981

	1981		1980		1979		1978		1977	
	Million Dollars	Thousand Acres	Million Dollars	Thousand Acres	Million Dollars	Thousand Acres	Million Dollars	Thousand Acres	Million Dollars	Thousand Acres
Appropriated 1/	58.9	217,921	54.8	229.4	46.8	225.0	37.2	198.9	30.5	178.0
Knutson-Vandenberg Funds	53.6	204,771	55.1	204.6	53.7	221.1	42.1	212.4	35.0	205.0
Total	112.5	422,692	109.9	434.1	100.5	446.1	79.3	411.3	65.5	383.0

1/ Does not include funds for nursery and tree improvement.

Table 24. Reforestation program needs--fiscal years 1981-1985

	Backlog (1,000 acres)	Current or anticipated (1,000 acres)	Total (1,000 acres)	Annual program appropriated funds (1,000 acres)	(million dollars)
10/1/80 bal.	575	775	1,350		
Fiscal year 1981					
new needs	--	+ 375	+ 375 1/		
adjustments	- 88	--	- 88 2/		
accomplishments	- 74	- 346	-420	218	61.9
10/1/81 bal.	413	804	1,217		
Fiscal year 1982					
new needs	--	+ 396	+ 396		
projected accomplishments	- 62	- 311	-373	206 3/	72.4
10/1/82 bal.	351	889	1,240		
Fiscal year 1983					
new needs	--	+ 400	+ 400		
projected accomplishments	- 66	-338	-404	190	76.0
10/1/83 bal.	285	951	1,236		
Fiscal year 1984					
new needs	--	+ 400	+ 400		
projected accomplishments	- 70	-381	-451	210	84.0
10/1/84 bal.	215	970	1,185		
Fiscal year 1985					
new needs	--	+ 400	+ 400		
projected accomplishments	- 12	- 448	- 460	210	86.4
10/1/85 bal.	203	922	1,125		

1/ New needs are the results of timber harvests, regeneration failures, and natural disasters such as fires, storms, insects and diseases.
2/ The adjustments include acres regenerated through natural stocking and reduction by management decision (land classification, multiple use, and land use decisions).
3/ Includes the Tongass NF acres but not dollars.

Table 25. Reforestation needs as of October 1, 1981 by State, Forest, and site productivity class

State National Forest	Acres by site productivity class 20-49	 50-84	 85-119	 120+	Total acres
Alabama					
Alabama	0	1,688	3,905	563	6,156
Alaska					
Chugach	23	61	100	--	184
Tongass-Chatham	--	--	2,216	4,338	6,554
Tongass-Ketchikan	--	--	--	20,366	20,266
Tongass-Stikine	--	774	--	11,329	12,103
Subtotal	23	835	2,316	36,033	39,207
Arizona					
Apache-Sitgreaves	3,243	14,178	308	--	17,729
Coconino	136	7,798	9,423	--	17,357
Coronado	--	--	--	--	--
Kaibab	1,116	6,098	--	--	7,214
Prescott	--	640	--	--	640
Tonto	108	2,324	--	--	2,432
Subtotal	4,603	31,038	9,731	--	45,372
Arkansas					
Ouachita	--	25,962	3,016	110	29,088
Ozark and St. Francis	--	3,634	927	--	4,561
Subtotal	--	29,596	3,943	110	33,649
California					
Angeles	--	365	--	--	365
Cleveland	607	45	--	--	652
Eldorado	--	160	1,077	1,755	2,992
Inyo	129	140	--	--	269
Klamath	7,758	7,406	2,793	1,259	19,216
Lassen	--	497	109	--	606
Los Padres	450	286	50	--	786
Mendocino	70	863	871	95	1,899
Modoc	2,847	6,944	1,507	578	11,876
Plumas	284	2,752	1,698	353	5,087
Rogue River	--	--	4,283	--	4,283
San Bernardino	212	233	157	--	602
Sequoia	658	3,894	1,855	72	6,479
Shasta-Trinity	--	22,297	16,452	9,325	48,074
Sierra	487	2,027	1,939	1,412	5,865
Siskiyou	--	--	587	--	587
Six Rivers	--	--	1,620	4,027	5,647
Stanislaus	--	381	3,745	2,052	6,178
Tahoe	2,709	3,885	2,261	995	9,850
Toiyabe	1,443	--	--	--	1,443
Subtotal	17,654	52,175	41,004	21,923	132,756
Colorado					
Arapaho and Roosevelt	--	4,280	--	--	4,280
Grand Mesa, Uncompahgre and Gunnison	2,390	1,074	210	--	3,674
Manti-LaSal	--	--	--	--	--
Pike and San Isabel	140	2,681	50	--	2,871
Rio Grande	1,205	516	--	--	1,719
Routt	1,280	--	--	--	1,280
San Juan	9,392	22,168	--	--	31,560
White River	534	3,506	--	--	4,040
Subtotal	14,939	34,225	260	--	49,424

Table 25 (con.). Reforestation needs as of October 1, 1981 by State, Forest and site productivity class

State National Forest	Acres by site productivity class 20-49	 50-84	 85-119	 120+	Total acres
Florida					
Florida	8,249	6,574	10,452	3,508	28,783
Georgia					
Chattahoochee and Oconee	--	4,685	2,242	1,367	8,294
Idaho					
Boise	3,100	22,185	4,494	365	30,144
Caribou	511	289	--	--	800
Challis	726	316	--	--	1,042
Clearwater	8,260	13,237	19,937	60,301	101,735
Idaho Panhandle	30,594	3,465	20,017	39,319	93,395
Kootenai	--	20	795	1,010	1,825
Lolo	10	17	--	--	27
Nezperce	10,133	5,533	9,048	8,446	33,160
Payette	945	3,174	2,326	--	6,445
Salmon	3,665	1,883	1,406	--	6,954
Sawtooth	34	2,951	--	--	2,985
Targhee	3,354	7,400	--	--	10,754
Subtotal	61,332	60,470	58,023	109,441	289,266
Illinois					
Shawnee	124	1,757	1,017	290	3,188
Indiana					
Hoosier	--	598	290	127	1,015
Kentucky					
Daniel Boone	260	2,928	2,347	29	5,564
Louisiana					
Kitsatchie	--	1,239	4,618	5,254	11,111
Maine					
White Mountain	--	50	600	50	700
Michigan					
Hiawatha	1,096	807	154	19	2,076
Huron-Manistee	3,180	3,754	510	--	7,444
Ottawa	--	2,300	600	--	2,900
Subtotal	4,276	6,861	1,264	19	12,420
Minnesota					
Chippewa	170	144	--	--	314
Superior	4,285	6,260	330	109	10,984
Subtotal	4,455	6,404	330	109	11,298
Mississippi					
Mississippi	106	928	8,341	5,948	15,323
Missouri					
Mark Twain	3,289	4,638	631	--	8,558
Montana					
Beaverhead	658	2,850	530	--	4,038
Bitterroot	7,470	5,296	3,647	118	16,531
Custer	473	158	--	--	631
Deerlodge	3,282	1,148	1,525	60	6,015

Table 25 (con.). Reforestation needs in Acres as of October 1, 1981 by State, Forest and site productivity class

State National Forest	Acres by site productivity class 20-49	 50-84	 85-119	 120+	Total acres
Flathead	5,102	1,489	8,180	9,227	23,998
Gallatin	5,559	2,905	2,077	341	10,882
Helena	2,820	3,068	2,773	104	8,765
Idaho Panhandle	--	--	--	80	80
Kootenai	6,699	6,497	19,722	12,732	45,650
Lewis and Clark	481	501	159	--	1,141
Lolo	4,633	7,317	12,167	1,358	25,475
Subtotal	37,177	31,229	50,780	24,020	143,206
Nebraska					
Nebraska	--	--	--	--	--
Nevada					
Humboldt	--	--	--	--	--
Toiyabe	--	--	--	--	--
Subtotal	--	--	--	--	--
New Hampshire					
White Mountain	--	200	700	200	1,100
New Mexico					
Carson	1,505	3,515	1,207	--	6,227
Cibola	1,264	14,475	--	--	15,739
Gila	2,377	4,031	--	--	6,408
Lincoln	--	3,990	395	--	4,385
Santa Fe	--	7,212	--	--	7,212
Subtotal	5,146	33,223	1,602	--	39,971
North Carolina					
North Carolina	85	1,759	2,019	3,263	7,126
Ohio					
Wayne	--	577	280	207	1,064
Oklahoma					
Ouachita	--	4,010	686	570	5,266
Oregon					
Deschutes	8,272	13,065	7,037	329	28,703
Fremont	2,364	2,187	1,328	--	5,879
Malheur	2,738	1,338	--	--	4,076
Mt. Hood	3	4,197	13,514	2,107	19,821
Ochoco	1,582	693	100	--	2,375
Rogue River	--	680	19,971	162	20,813
Siskiyou	452	2,854	15,591	2,488	21,385
Siuslaw	--	--	59	6,360	6,419
Umatilla	491	10,932	563	--	11,986
Umpqua	40	1,807	8,068	2,188	12,103
Wallowa-Whitman	2,434	4,104	594	53	7,185
Willamette	67	1,885	13,627	11,810	27,389
Winema	9,230	2,214	816	780	13,040
Subtotal	27,673	45,956	81,268	26,277	181,174
Pennsylvania					
Allegheny	--	1,203	1,735	--	2,938
Puerto Rico					
Caribbean	--	--	180	--	180
South Carolina					
South Carolina	--	161	2,200	2,400	4,761

Table 25 (con.). Reforestation needs as of October 1, 1981 by State, Forest, and site productivity class

State National Forest	Acres by site productivity class 20-49	 50-84	 85-119	 120+	Total acres
South Dakota					
Black Hills	--	--	--	--	--
Tennessee					
Cherokee	--	568	366	597	1,531
Texas					
Texas	--	2,150	3,564	1,680	7,394
Utah					
Ashley	2,748	465	--	--	3,213
Dixie	661	981	--	--	1,642
Fishlake	742	--	--	--	742
Manti-LaSal	--	774	--	--	774
Sawtooth	--	--	--	--	--
Unita	--	3	185	--	188
Wasatch	897	789	--	--	1,686
Subtotal	5,048	3,012	185	--	8,245
Vermont					
Green Mountain	2,134	229	178	--	2,541
Virginia					
George Washington	989	410	320	340	2,059
Jefferson	405	1,583	270	380	2,638
Subtotal	1,394	1,993	590	720	4,697
Washington					
Colville	93	2,600	2,334	47	5,074
Gifford Pinchot	729	8,546	15,852	3,551	28,678
Idaho Panhandle	212	--	84	2,776	3,072
Mt. Baker-Snoqualmie	--	1,066	7,549	2,470	11,085
Okanogan	295	2,921	110	--	3,326
Olympic	190	11,350	1,271	1,467	14,278
Umatilla	--	1,480	475	--	1,955
Wenatchee	1,512	2,086	2,978	476	7,052
Subtotal	3,031	30,049	30,653	10,787	74,520
West Virginia					
George Washington	36	25	--	169	230
Monongahela	--	140	1,123	325	1,588
Subtotal	36	165	1,123	494	1,818
Wisconsin					
Chequamegon	1,725	2,672	2,850	100	7,347
Nicolet	--	2,738	435	--	3,173
Subtotal	1,725	5,410	3,285	100	10,520
Wyoming					
Bighorn	1,246	--	--	--	1,246
Black Hills	--	--	--	--	--
Bridger-Teton	3,345	2,127	--	--	5,472
Medicine Bow	6,793	2,690	--	--	9,483
Shoshone	340	140	--	--	480
Targhee	--	--	--	--	--
Wasatch	--	--	--	--	--
Subtotal	11,724	4,957	--	--	16,681
Total	214,483	413,540	332,708	256,086	1,216,817

Table 26. Timber stand improvement accomplishments by funding source--fiscal years 1977-1981

	1981		1980		1979		1978		1977	
	Million Dollars	Thousand Acres	Million Dollars	Thousand Acres	Million Dollars	Thousand Acres	Million Dollars	Thousand Acres	Million Dollars	Thousand Acres
Appropriated	32.7	257.0	37.0	298.9	34.5	323.8	26.5	256.2	25.4	252.2
Knutson-Vandenberg Funds	20.8	139.4	19.9	158.1	17.7	153.3	18.0	164.2	15.0	168.2
Total	53.5	396.4	56.9	457.0	52.2	477.1	44.5	420.4	40.4	420.4

1/ Excludes funds for nursery and tree improvement.

Table 27. Timber stand improvement program needs--fiscal years 1981-1985

	Work needs (1,000 acres)	Annnual program appropriated funds (1,000 acres)	(million dollars)
10/1/80 balance	1,821		
Fiscal year 1981			
new needs	+ 270		
accomplishments 2/	- 375	257	28.3
10/1/81 balance	1,716		
Fiscal year 1982			
new needs	+ 317		
projected accomplishments	- 317	180 1/	28.0 1/
10/1/82 balance	1,716		
Fiscal year 1983			
new needs	+ 375		
projected accomplishments	- 302	160	26.9
10/1/83 balance	1,789		
Fiscal year 1984			
new needs	+ 400		
projected accomplishments	- 406	300	51.0
10/1/84 balance	1,783		
Fiscal year 1985			
new needs	+ 400		
projected accomplishments	- 409	320	54.4
10/1/85 balance	1,774		

1/ Includes the Tongass NF acres (6,700) but not dollars; dollars are not appropriated funds.
2/ Accomplishments do not include pruning and fertilization.

Table 28. Timber stand improvement needs as of October 1, 1981 by State, Forest, and site productivity class.

State National Forest	Acres by site productivity class 20-49	 50-84	 85-119	 120+	Release Total	Acres by site productivity class 20-49	 50-84	 85-119	 120+	Thinning Total	TSI Total
Alabama											
Alabama	--	758	505	--	1,263	--	--	60	--	60	1,323
Alaska											
Chugach	--	28	668	--	696	--	178	475	1,040	1,693	2,389
Tongass-Chatham	--	--	806	3,108	3,914	--	--	435	1,350	1,785	5,699
Tongass-Ketchikan	--	--	--	427	427	--	--	--	38,918	38,918	39,345
Tongass-Stikine	--	--	196	--	196	--	956	749	15,766	17,471	17,667
Subtotal	--	28	1,670	3,535	5,233	--	1,134	1,659	57,074	59,867	65,100
Arizona											
Apache-Sitgreaves	--	--	--	--	--	3,182	71,897	3,372	--	78,451	78,451
Coconino	--	--	--	--	--	843	11,622	13,427	--	25,892	25,892
Coronado	--	--	--	--	--	--	--	--	--	--	--
Kaibab	--	--	--	--	--	2,430	29,617	--	--	32,047	32,047
Prescott	--	--	--	--	--	--	1,210	--	--	1,210	1,210
Tonto	--	--	--	--	--	3,993	11,488	--	--	15,481	15,481
Subtotal	--	--	--	--	--	10,448	125,834	16,799	--	153,081	153,081
Arkansas											
Ouachita	--	10,613	1,013	--	11,626	--	2,244	90	--	2,334	13,960
Ozark and St. Francis	--	3,823	956	--	4,779	--	4,209	1,052	--	5,261	10,040
Subtotal	--	14,436	1,969	--	16,405	--	6,453	1,142	--	7,595	24,000
California											
Angeles	--	137	--	--	137	--	378	--	--	378	515
Cleveland	50	70	--	--	120	172	3,273	--	--	3,445	3,565
Eldorado	--	--	870	2,825	3,695	--	--	256	70	326	4,021
Inyo	342	--	--	--	342	--	285	--	--	285	627
Klamath	635	4,037	2,556	943	8,171	4,878	8,088	3,093	1,305	17,364	25,535
Lassen	--	298	1,880	450	2,628	409	1,392	683	196	2,680	5,308
Los Padres	100	432	125	--	657	799	40	10	--	849	1,506
Mendocino	250	1,150	1,013	55	2,468	150	700	740	102	1,692	4,160
Modoc	64	657	1,000	--	1,721	--	12,065	2,661	--	14,726	16,447
Plumas	2,588	8,182	3,897	4,346	19,013	49	6,431	4,567	1,389	12,436	31,449
Rogue River	--	--	864	--	864	--	--	--	-	--	864
San Bernardino	258	232	30	--	520	841	3,903	563	--	5,307	5,827
Sequoia	86	1,166	1,239	50	2,541	--	826	1,079	20	1,925	4,466
Shasta-Trinity	770	2,495	4,974	3,223	11,462	--	994	689	480	2,163	13,625
Sierra	47	515	1,097	423	2,082	315	1,640	2,052	1,900	5,907	7,989
Siskiyou	--	--	352	--	352	--	--	45	--	45	397
Six Rivers	--	--	3,978	12,352	16,330	--	--	862	6,425	7,287	23,617
Stanislaus	--	576	4,012	1,664	6,252	--	145	1,224	932	2,301	8,553
Tahoe	5,231	4,925	6,379	4,804	21,339	2,841	2,099	3,565	1,524	10,029	31,368
Toiyabe	2,823	--	--	--	2,823	6,531	--	--	--	6,531	9,354
Subtotal	13,244	24,872	34,266	31,135	103,517	16,985	42,259	22,089	14,343	95,676	199,193
Colorado											
Arapaho and Roosevelt	--	--	--	--	--	--	122,934	--	--	122,934	122,934
Grand Mesa, Uncompahgre and Gunnison	948	597	651	--	2,196	1,106	810	510	--	2,426	4,622

Table 28 (con.). Timber stand improvement needs as of October 1, 1981 by State, Forest, and site productivity class.

State National Forest	Acres by site productivity class 20-49	 50-84	 85-119	 120+	Release acres	Acres by site productivity class 20-49	 50-84	 85-119	 120+	Thinning Total	TSI Total
Manti-LaSal	--	1,671	--	--	1,671	--	297	--	--	297	1,968
Pike and San Isabel	20	420	--	--	440	--	2,676	60	--	2,736	3,176
Rio Grande	2,034	12,600	2,204	--	16,838	1,694	10,705	1,836	--	14,235	31,073
Routt	244	--	--	--	244	817	--	--	--	817	1,061
San Juan	--	610	--	--	610	--	3,992	--	--	3,992	4,602
White River	590	295	--	--	885	3,718	3,390	--	--	7,108	7,993
Subtotal	3,836	16,193	2,855	--	22,884	7,335	144,804	2,406	--	154,545	177,429
Florida											
Florida	--	1,083	239	--	1,322	357	293	31	--	681	2,003
Georgia											
Chattahoochee and Oconee	--	3,080	2,496	647	6,223	--	724	407	134	1,265	7,488
Idaho											
Boise	60	2,318	2,286	--	4,664	40	3,181	1,747	1,210	6,178	10,842
Caribou	432	246	--	--	678	714	711	--	--	1,425	2,103
Challis	--	--	--	--	--	733	362	--	--	1,095	1,095
Clearwater	125	145	1,076	2,505	3,851	4,024	345	8,324	12,997	25,690	29,541
Idaho Panhandle	2,613	2,836	4,139	10,829	20,417	15,192	3,793	29,873	54,416	103,274	123,691
Kootenai	--	--	185	278	463	--	--	20	37	57	520
Nezperce	1,006	163	600	268	2,037	5,574	929	2,126	3,068	11,697	13,734
Payette	--	--	--	--	--	--	1,522	2,989	8	4,519	4,519
Salmon	143	160	--	--	303	3,116	1,626	452	--	5,194	5,497
Sawtooth	--	60	--	--	60	25	77	--	--	102	162
Targhee	--	--	--	--	--	167	5,669	--	--	5,836	5,836
Subtotal	4,379	5,928	8,286	13,880	32,473	29,585	18,215	45,531	71,736	165,067	197,540
Illinois											
Shawnee	296	4,181	2,422	690	7,589	423	5,986	3,465	988	10,862	18,451
Indiana											
Hoosier	--	601	292	128	1,021	--	102	49	24	175	1,196
Kentucky											
Daniel Boone	424	2,571	1,582	205	4,782	149	5,661	4,042	814	10,666	15,448
Louisiana											
Kitsatchie	--	294	666	470	1430	--	228	389	506	1,123	2,553
Maine											
White Mountain	--	200	300	50	550	--	25	98	25	148	698
Michigan											
Hiawatha	401	253	42	7	703	446	282	47	7	782	1,485
Huron-Manistee	1,644	1,544	168	--	3,356	305	571	108	--	984	4,340
Ottawa	--	1,285	425	--	1,710	--	--	460	--	460	2,170
Subtotal	2,045	3,082	635	7	5,769	751	853	615	7	2,226	7,995
Minnesota											
Chippewa	2,000	1,311	--	--	3,311	--	--	--	--	--	3,311
Superior	2,808	4,104	216	72	7,200	507	741	39	13	1,300	8,500
Subtotal	4,808	4,104	216	72	10,511	507	741	39	13	1,300	11,811

Table 28 (con.). Timber stand improvement needs as of October 1, 1981 by State, Forest, and site productivity class.

State National Forest	Acres by site productivity class 20-49	 50-84	 85-119	 120+	Release Total	Acres by site productivity class 20-49	 50-84	 85-119	 120+	Thinning Total	TSI Total
Mississippi											
Mississippi	--	293	1,297	945	2,535	--	--	380	899	1,279	3,814
Missouri											
Mark Twain	4,114	6,564	337	--	11,015	1,322	3,423	329	--	5,124	16,139
Montana											
Beaverhead	286	334	--	--	620	528	1,589	695	48	2,860	3,480
Bitterroot	822	111	127	--	1,060	3,081	1,254	1,740	29	6,104	7,164
Custer	--	--	--	--	--	167	297	93	--	557	557
Deerlodge	--	210	--	--	210	10,194	1,799	1,991	57	13,951	14,161
Flathead	556	656	284	31	1,527	1,200	3,308	14,245	22,088	40,841	42,368
Gallatin	71	120	171	--	362	1,186	2,617	4,463	997	9,263	9,625
Helena	343	385	637	33	1,398	1,447	2,108	2,164	31	5,750	7,148
Idaho Panhandle	74	--	--	--	74	80	--	804	176	1,060	1,134
Kootenai	303	970	1,665	1,385	4,323	6,007	12,243	37,537	23,083	78,870	83,193
Lewis and Clark	--	--	--	--	--	605	1,516	341	28	2,490	2,490
Lolo	272	411	504	67	1,254	4,609	3,319	12,907	1,677	22,512	23,766
Subtotal	2,727	3,197	3,388	1,516	10,828	29,014	30,050	76,980	48,214	184,258	195,096
Nebraska											
Nebraska	--	--	--	--	--	--	--	--	--	--	--
Nevada											
Humboldt	805	--	--	--	805	--	--	--	--	--	805
Toiyabe	300	--	--	--	300	700	--	--	--	700	1,000
Subtotal	1,105	--	--	--	1,105	700	--	--	--	700	1,805
New Hamphshire											
White Mountain	--	400	700	100	1,200	--	250	300	50	600	1,800
New Mexico											
Carson	--	192	--	--	192	11,581	12,727	2,225	--	26,533	26,725
Cibola	--	--	--	--	--	--	30,690	--	--	30,690	30,690
Gila	--	--	--	--	--	18,079	52,768	5,000	480	76,327	76,327
Lincoln	--	--	--	--	--	--	4,432	439	--	4,871	4,871
Santa Fe	--	700	--	--	700	--	41,365	--	--	41,365	42,065
Subtotal	--	892	--	--	892	29,660	141,982	7,664	480	179,786	180,678
North Carolina											
North Carolina	--	1,388	339	1,393	3,120	--	696	114	192	1,002	4,122
Ohio											
Wayne	--	400	197	84	681	--	87	42	21	150	831
Oklahoma											
Ouachita	--	2,252	--	132	2,384	35	4,948	621	--	5,604	7,988
Oregon											
Deschutes	--	1,756	887	--	2,643	17	2,468	4,262	452	7,199	9,842
Fremont	--	198	1,000	--	1,198	525	7,938	707	--	9,170	10,368
Malheur	--	196	--	--	196	6,517	3,348	--	--	9,865	10,061
Mt. Hood	--	53	967	10	1,030	73	1,563	4,964	2,262	8,862	9,892

Table 28 (con.). Timber stand improvement needs as of October 1, 1981 by State, Forest, and site productivity class.

State National Forest	Acres by site productivity class 20-49	 50-84	 85-119	 120+	Release acres	Acres by site productivity class 20-49	 50-84	 85-119	 120+	Thinning Total	TSI Total
Ochoco	621	--	--	--	621	4,084	22	--	--	4,106	4,727
Rogue River	--	--	5,258	110	5,368	--	36	2,235	13	2,284	7,652
Siskiyou	15	627	7,111	1,523	9,282	--	314	1,569	522	2,405	11,687
Siuslaw	--	--	--	9,050	9,050	--	--	--	10,287	10,287	19,337
Umatilla	--	--	--	--	--	520	2,068	910	--	3,498	3,498
Umpqua	--	1,083	6,370	1,389	8,842	--	2,626	6,256	1,729	10,611	19,453
Wallowa-Whitman	41	349	--	--	390	3,390	3,584	2,575	--	9,549	9,939
Willamette	--	257	3,752	7,338	11,347	--	399	3,094	13,340	16,833	28,180
Winema	--	--	--	--	--	4,491	19,287	5,384	266	29,428	29,428
Subtotal	677	4,519	25,345	19,426	49,967	19,617	43,653	31,956	28,871	124,097	174,064
Pennsylvania											
Allegheny	--	--	--	--	--	--	852	1,294	--	2,146	2,146
Puerto Rico											
Caribbean	--	--	1,500	--	1,500	--	--	--	--	--	1,500
South Carolina											
South Carolina	--	160	600	750	1,510	--	155	550	650	1,355	2,865
South Dakota											
Black Hills	--	--	--	--	--	24,230	--	--	--	24,230	24,230
Tennessee											
Cherokee	--	2,834	2,272	1,882	6,988	--	1,969	1,046	382	3,397	10,385
Texas											
Texas	--	423	700	337	1,460	--	370	614	295	1,279	2,739
Utah											
Ashley	329	--	--	--	329	6,732	3,151	--	--	9,883	10,212
Dixie	--	--	--	--	--	1,437	5,004	--	--	6,441	6,441
Fishlake	249	--	--	--	249	--	25	--	--	25	274
Manti-LaSal	--	5,998	--	--	5,998	--	2,345	--	--	2,345	8,343
Sawtooth	--	--	--	--	--	--	--	--	--	--	--
Unita	--	--	--	--	--	--	--	111	--	111	111
Wasatch	--	--	--	--	--	1,277	410	288	--	1,975	1,975
Subtotal	578	5,998	--	--	6,576	9,446	10,935	399	--	20,780	27,356
Vermont											
Green Mountain	3,079	269	501	--	3,849	4,065	406	610	--	5,081	8,930
Virginia											
George Washington	--	135	103	1,016	1,254	834	938	--	485	2,257	3,511
Jefferson	--	572	529	852	1,953	279	978	315	50	1,622	3,575
Subtotal	--	707	632	1,868	3,207	1,113	1,916	315	535	3,879	7,086
Washington											
Colville	-	1,116	2,316	160	3,592	40	1,442	3,944	199	5,625	9,217
Gifford Pinchot	39	302	502	802	1,645	6,597	6,212	12,257	5,409	30,475	32,120
Idaho Panhandle	--	--	--	639	69	238	--	80	1,400	1,718	2,357
Mt. Baker-Snoqualmie	--	17	259	421	697	--	2,101	3,545	2,301	7,947	8,644
Okanogan	13	358	--	--	371	599	7,155	--	--	7,754	8,125
Olympic	--	--	--	12	12	248	771	3,843	3,440	8,302	8,314

Table 28 (con.). Timber stand improvement needs as of October 1, 1981 by State, Forest, and site productivity class.

State National Forest	Acres by site productivity class 20-49	 50-84	 85-119	 120+	Release acres	Acres by site productivity class 20-49	 50-84	 85-119	 120+	Thinning Total	TSI Total
Umatilla	--	--	--	--	--	85	2,093	--	--	2,178	2,178
Wenatchee	--	400	414	201	1,015	1,084	10,435	2,940	359	14,818	15,833
Subtotal	52	2,193	3,491	2,235	7,971	8,891	30,209	26,609	13,108	78,817	86,788
West Virginia											
George Washington	--	--	8	55	63	--	108	82	16	206	269
Monongahela	--	--	--	--	--	--	279	3,000	--	3,779	3,779
Subtotal	--	--	8	55	63	--	887	3,082	16	3,985	4,048
Wisconsin											
Chequamegon	200	1,800	100	--	2,100	100	500	450	60	1,110	3,210
Nicolet	--	900	300	--	1,200	--	160	90	--	250	1,450
Subtotal	200	2,700	400	-	3,300	100	660	540	60	1,360	4,660
Wyoming											
Bighorn	29,625	1,102	--	--	30,727	5,917	--	--	--	5,917	36,644
Black Hills	--	--	--	--	--	1,410	--	--	--	1,410	1,410
Bridger-Teton	--	--	--	--	--	--	3,217	550	--	3,767	3,767
Medicine Bow	619	1,126	--	--	1,745	6,972	1,044	--	--	8,016	9,761
Shoshone	1,247	--	--	--	1,247	8,439	277	--	--	8,716	9,963
Targhee	--	--	--	--	--	--	--	--	--	--	--
Wasatch	--	--	--	--	--	505	--	--	--	505	505
Subtotal	31,491	2,228	--	--	33,719	23,243	4,538	550	--	28,331	62,050
Total	73,055	120,139	100,106	81,542	374,842	217,976	631,348	252,816	239,437	1,341,577	1,716,419

Table 29. Certification of reforestation and timber stand improvement acreages by State and Forest--fiscal year 1981

State National Forest	Planted	Seeded	Natural 1/ regen. w/ site prep.	Natural 1/ regen. w/o site prep.	Total Refor.	Release	Pre-commercial thinning	Total 1/ TSI
Alabama								
Alabama	2,746	--	--	--	2,746	561	--	561
Alaska								
Chugach	--	--	--	62	62	--	50	50
Tongass-Chatham	--	--	--	3,132	3,132	--	508	508
Tongass-Ketchikan	--	--	--	4,245	4,245	2,029	2,573	4,602
Tongass-Stikine	--	--	--	5,220	5,220	--	1,058	1,058
Subtotal	--	--	--	12,659	12,659	2,029	4,189	6,218
Arizona								
Apache-Sitgreaves	625	--	--	--	625	--	--	--
Coconino	920	--	--	--	920	989	21,289	22,278
Coronada	--	--	--	--	--	--	--	--
Kaibab	200	--	--	--	200	--	9,263	9,263
Prescott	52	--	20	--	72	35	238	273
Tonto	--	--	--	--	--	--	1,509	1,509
Subtotal	1,797	--	20	--	1,817	1,024	32,299	33,323
Arkansas								
Ouachita	5,192	--	2,180	--	7,372	2,345	4,310	6,655
Ozark and St. Francis	586	--	1,139	--	1,725	7,037	3,834	10,871
Subtotal	5,778	--	3,319	--	9,097	9,382	8,144	17,526
California								
Angeles	--	--	--	--	--	--	--	--
Cleveland	--	--	--	--	--	--	--	--
Eldorado	650	--	--	--	650	1,353	183	1,536
Inyo	--	--	--	--	--	30	1,575	1,605
Klamath	727	--	--	--	727	660	969	1,629
Lassen	--	--	--	--	--	--	--	--
Los Padres	--	--	--	--	--	--	--	--
Mendocino	--	--	--	--	--	--	196	196
Modoc	--	--	--	--	--	--	--	--
Plumas	774	--	--	--	774	2,730	1,826	4,556
Rogue River	77	--	--	--	77	--	128	128
San Bernardino	24	--	--	--	24	50	683	733
Sequoia	462	--	--	--	462	740	462	1,202
Shasta-Trinity	9,371	--	--	--	9,371	155	1,722	1,877
Sierra	800	--	--	--	800	--	500	500
Siskiyou	138	--	--	--	138	--	--	--
Six Rivers	3,674	--	--	--	3,674	196	141	337
Stanislaus	79	--	--	--	79	55	--	55
Tahoe	393	--	--	--	393	489	1,101	1,590
Toiyabe	--	--	--	--	--	--	--	--
Subtotal	17,169	--	--	--	17,169	6,458	9,486	15,944

Table 29 (con.). Certification of reforestation and timber stand improvement acreages by State and Forest--fiscal year 1981

State National Forest	Planted	Seeded	Natural 1/ regen. w/ site prep.	Natural 1/ regen. w/o site prep.	Total Refor.	Release	Pre-commercial thinning	Total 1/ TSI
Colorado								
Arapaho and Roosevelt	150	--	--	1,400	1,550	--	2,653	2,653
Grand Mesa, Uncompahgre and Gunnison	--	--	--	--	--	675	125	800
Manti-LaSal	--	--	--	--	--	284	--	284
Pike and San Isabel	211	--	192	--	403	1,234	2,464	3,698
Rio Grande	1,225	--	--	--	1,225	320	211	531
Routt	612	94	--	--	706	70	794	864
San Juan	519	--	--	393	912	--	85	85
White River	86	--	--	21	107	38	392	430
Subtotal	2,803	94	192	1,814	4,903	2,621	6,724	9,345
Florida								
Florida	9,331	--	219	584	10,134	3,040	--	3,040
Georgia								
Chattahoochee and Oconee	4,104	--	1,782	--	5,886	5,722	390	6,112
Idaho								
Boise	1,325	--	--	--	1,325	--	2,390	2,390
Caribou	--	--	--	--	--	--	--	--
Challis	70	--	--	--	70	--	345	345
Clearwater	980	--	38	16	1,034	98	1,761	1,859
Idaho Panhandle	4,461	--	544	524	5,529	1,348	2,416	3,764
Kootenai	--	--	--	77	77	--	--	--
Nezperce	3,147	--	47	43	3,237	106	645	751
Payette	1,782	--	--	--	1,782	--	--	--
Salmon	239	--	--	385	624	--	422	422
Sawtooth	--	--	--	--	--	--	--	--
Targhee	4,438	--	1,564	42	6,044	825	1,267	2,092
Subtotal	16,442	--	2,193	1,087	19,722	2,377	9,246	11,623
Illinois								
Shawnee	565	--	45	--	610	456	254	710
Indiana								
Wayne-Hoosier	--	--	858	--	858	208	--	208
Kentucky								
Daniel Boone	2,271	--	379	--	2,650	3,172	1,137	4,309
Louisiana								
Kisatchie	2,034	--	3,052	607	5,693	1,062	121	1,183

Table 29 (con.). Certification of reforestation and timber stand improvement acreages by State and Forest--fiscal year 1981

State National Forest	Planted	Seeded	Natural 1/ regen. w/ site prep.	Natural 1/ regen. w/o site prep.	Total Refor.	Release	Pre-commercial thinning	Total 1/ TSI
Maine								
White Mountain	--	--	--	--	--	--	--	--
Michigan								
Hiawatha	129	--	194	51	374	--	--	--
Huron-Manistee	3,230	--	5,048	783	9,061	1,207	192	1,399
Ottawa	732	--	142	24	898	1,104	2,366	3,470
Subtotal	4,091	--	5,384	858	10,333	2,311	2,558	4,869
Minnesota								
Chippewa	1,031	--	2,262	--	3,293	1,484	149	1,633
Superior	5,543	--	199	22	5,764	3,623	1,001	4,624
Subtotal	6,574	--	2,461	22	9,057	5,107	1,150	6,257
Mississippi								
Mississippi	4,588	--	3,475	66	8,129	2,697	2,125	4,822
Missouri								
Mark Twain	1,206	--	6,484	--	7,690	6,547	3,833	10,380
Montana								
Beaverhead	38	--	1,134	10	1,182	--	340	340
Bitterroot	962	--	--	--	962	--	2,146	2,146
Custer	--	--	--	--	--	--	122	122
Deerlodge	399	--	851	57	1,307	--	432	432
Flathead	687	935	620	63	2,305	488	1,197	1,685
Gallatin	1,027	30	--	--	1,057	--	473	473
Helena	316	--	--	--	316	--	466	466
Idaho Panhandle	--	--	--	--	--	--	--	--
Kootenai	1,821	--	1,154	1,780	4,755	307	2,990	3,297
Lewis and Clark	--	--	46	--	46	--	342	342
Lolo	1,567	--	713	766	3,046	534	1,649	2,183
Subtotal	6,817	965	4,518	2,676	14,976	1,329	10,157	11,486
Nebraska								
Nebraska	--	--	--	--	--	--	--	--
Nevada								
Humboldt	--	--	--	--	--	25	--	25
Toiyabe	--	--	--	--	--	--	--	--
Subtotal	--	--	--	--	--	25	--	25
New Hampshire								
White Mountain	185	--	355	--	540	1,027	742	1,769
New Mexico								
Carson	170	--	--	--	170	--	7,242	7,242
Cibola	--	--	--	--	--	--	4,340	4,340

Table 29 (con.). Certification of reforestation and timber stand improvement acreages by State and Forest--fiscal year 1981

State National Forest	Planted	Seeded	Natural 1/ regen. w/ site prep.	Natural 1/ regen. w/o site prep.	Total Refor.	Release	Pre-commercial thinning	Total TSI 2/
Gila and Apache	--	--	--	--	--	--	898	898
Lincoln	165	--	--	--	165	--	300	300
Santa Fe	102	--	--	--	102	--	--	--
Subtotal	437	--	--	--	437	--	12,780	12,780
New York								
Green Mountain	--	--	--	--	--	--	100	100
North Carolina								
North Carolina	2,158	--	779	--	2,937	1,253	296	1,549
Ohio								
Wayne	--	--	--	--	--	174	105	279
Oklahoma								
Ouachita	978	--	137	--	1,115	847	385	1,232
Oregon								
Deschutes	5,096	--	1,319	--	6,415	--	4,173	4,173
Fremont	711	--	--	--	711	--	2,752	2,752
Malheur	--	--	192	--	192	--	1,255	1,255
Mt. Hood	4,382	--	--	1,038	5,420	13	1,705	1,718
Ochoco	1,007	--	--	--	1,007	--	8,438	8,438
Rogue River	1,754	--	--	--	1,754	818	--	818
Siskiyou	6,412	--	--	--	6,412	4,269	1,107	5,376
Siuslaw	7,064	--	--	--	7,064	2,583	2,852	5,435
Umatilla	804	--	--	--	804	44	1,571	1,615
Umpqua	6,412	33	--	149	6,594	2,424	2,866	5,290
Wallowa-Whitman	3,492	23	490	1,932	5,937	--	381	381
Willamette	7,628	--	--	66	7,694	2,555	5,141	7,696
Winema	1,033	--	--	--	1,033	--	2,550	2,550
Subtotal	45,795	56	2,001	3,185	51,037	12,706	34,791	47,497
Pennsylvania								
Allegheny	--	--	1,590	204	1,794	--	1,670	1,670
Puerto Rico								
Caribbean	120	--	--	--	120	1,200	--	1,200
[illegible]								
[illegible]	[illegible]	--	[illegible]	[illegible]	3,[illegible]	2,444	1,991	[illegible]
[illegible]								
[illegible]	--	--	--	--	--	--	[illegible]	[illegible]
[illegible]								
[illegible]	[illegible]	--	--	--	[illegible]	[illegible]	[illegible]	[illegible]

Table 29 (con.). Certification of reforestation and timber stand improvement acreages by State and Forest--fiscal year 1981

State National Forest	Planted	Seeded	Natural regen. w/ site prep. [1]	Natural regen. w/o site prep. [1]	Total Refor.	Release	Pre-commercial thinning	Total TSI [1]
Texas								
Texas	1,395	--	553	--	1,948	110	2,104	2,214
Utah								
Ashley	--	--	--	178	178	--	250	250
Dixie	253	--	--	--	253	--	2,542	2,542
Fishlake	--	--	--	--	--	160	75	235
Manti-LaSal	--	--	--	--	--	91	325	416
Sawtooth	--	--	--	--	--	--	--	--
Unita	--	--	--	--	--	--	--	--
Wasatch	382	--	295	674	1,351	--	2,969	2,969
Subtotal	635	--	295	852	1,782	251	6,161	6,412
Vermont								
Green Mountain	--	--	1,413	--	1,413	650	287	937
Virginia								
George Washington	485	--	1,706	--	2,191	719	332	1,051
Jefferson	624	--	1,752	--	2,376	1,241	1,432	2,673
Subtotal	1,109	--	3,458	--	4,567	1,960	1,764	3,724
Washington								
Colville	1,379	20	302	1,107	2,808	797	2,316	3,113
Gifford Pinchot	10,973	--	115	274	11,362	699	5,231	5,930
Idaho Panhandle	493	--	--	15	508	--	220	220
Mt. Baker-Snoqualmie	4,772	--	412	80	5,264	407	2,369	2,776
Okanogan	872	--	932	181	1,985	559	4,060	4,619
Olympic	3,022	--	35	37	3,094	--	4,630	4,630
Umatilla	352	--	--	--	352	--	136	136
Wenatchee	3,145	--	--	2,137	5,282	718	2,147	2,865
Subtotal	25,008	20	1,796	3,831	30,655	3,180	21,109	24,289
West Virginia								
George Washington	74	--	100	--	174	187	54	241
Monongahela	--	--	--	--	--	105	148	253
Subtotal	74	--	100	--	174	292	202	494
Wisconsin								
Chequamegon	2,555	--	--	10	2,565	1,545	241	1,786
Nicolet	752	--	1,826	--	2,578	1,809	--	1,809
Subtotal	3,307	--	1,826	10	5,143	3,354	241	3,595

Table 29 (con.). Certification of reforestation and timber stand improvement acreages by State and Forest--fiscal year 1981

State National Forest	Planted	Seeded	Natural 1/ regen. w/ site prep.	Natural 1/ regen. w/o site prep.	Total Refor.	Release	Pre-commercial thinning	Total 1/ TSI
Wyoming								
Bighorn	--	--	--	--	--	--	--	--
Black Hills	--	--	--	--	--	--	1,731	1,731
Bridger-Teton	1,264	--	--	--	1,264	--	524	524
Medicine Bow	121	59	1,796	18	1,994	419	898	1,317
Shoshone	--	--	--	--	--	--	987	987
Targhee	--	--	--	--	--	--	--	--
Wasatch	--	--	--	225	225	--	462	462
Subtotal	1,385	59	1,796	243	3,483	419	4,602	5,021
Total	175,485	1,194	50,812	28,830	256,321	86,480	191,629	278,109

1/ Regen. = regeneration, w/ site prep. = site preparation, w/o site prep. = without site preparation, refor. = reforestation, TSI = timber stand improvement.

Table 30. Certification of reforestation and timber stand improvement acreages by Region--fiscal year 1981

Region	Reforestation					Timber Stand Improvement		
			Natural regeneration					
	Plant	Seed	with site preparation	without site preparation	Total	Release	Pre-commercial Thinning	Total
North	15,898	965	5,147	3,351	25,361	2,881	15,199	18,080
Rocky Mountain	2,924	153	1,988	1,832	6,897	3,743	20,564	24,307
Southwest	2,234	--	20	--	2,254	1,024	45,079	46,103
Intermountain	9,753	--	1,859	1,504	13,116	1,385	11,571	12,956
Pacific Southwest	16,954	--	--	--	16,954	6,458	9,358	15,816
Pacific Northwest	70,525	76	3,797	7,001	80,399	15,886	55,808	71,694
Southern	41,269	--	17,585	1,389	60,243	33,135	18,773	51,908
Eastern	15,928	--	20,416	1,094	37,438	19,939	11,088	31,027
Alaska	--	--	--	12,659	12,659	2,029	4,189	6,218
Total	175,485	1,194	50,812	28,830	256,321	86,480	191,629	278,109

Table 31. Developed recreation use on National Forest System lands by State--fiscal years 1977-1981 (thousand recreation visitor days) 1/

State 2/	1981	1980	1979	1978	1977
Alabama	290.7	298.1	271.7	271.7	264.4
Alaska	631.0	557.6	885.7	734.9	684.8
Arizona	6,235.9	5,900.6	5,355.7	5,006.9	5,042.4
Arkansas	660.8	679.6	757.2	748.1	724.4
California	22,319.4	23,431.2	22,379.2	21,968.6	18,908.6
Colorado	9,638.4	9,904.1	9,606.4	8,568.9	6,837.4
Flordia	1,514.7	1,578.5	1,422.2	1,488.4	1,510.5
Georgia	387.6	415.3	363.4	425.1	498.6
Idaho	3,642.5	3,663.7	3,526.2	3,192.5	2,984.0
Illinois	200.3	207.0	207.8	197.1	979.4
Indiana	189.9	203.4	198.5	191.3	200.7
Kansas	6.0	5.4	6.0	6.0	6.6
Kentucky	740.8	813.5	631.7	521.9	558.3
Louisiana	219.1	183.5	211.6	250.9	254.1
Maine	17.1	10.8	49.2	93.5	53.8
Michigan	1,486.6	1,457.2	1,330.2	1,379.0	1,377.1
Minnesota	1,046.5	1,173.5	1,151.2	1,300.7	1,290.4
Mississippi	248.8	258.8	285.6	247.9	229.9
Missouri	438.3	425.8	345.2	375.1	402.2
Montana	2,883.6	2,616.1	2,502.0	2,578.9	2,405.9
Nebraska	49.6	48.6	45.6	61.4	60.2
Nevada	1,057.1	1,020.2	974.4	822.1	724.4
New Hampshire	1,000.3	878.6	891.8	1,090.9	1,158.2
New Mexico	2,510.6	2,481.6	2,206.4	2,630.4	2,033.9
New York	9.1	9.4	9.0	9.5	11.2
North Carolina	1,397.1	1,475.7	1,237.8	1,131.6	1,090.6
North Dakota	16.1	14.0	12.9	15.1	15.0
Ohio	55.5	57.9	54.1	62.4	48.8
Oklahoma	81.5	75.6	77.4	82.3	96.0
Oregon	8,312.1	8,456.2	8,000.6	7,494.3	7,226.3
Pennsylvania	635.4	610.6	620.2	517.7	658.2
Puerto Rico	241.6	416.2	396.2	350.5	314.4
South Carolina	285.4	246.6	224.3	193.8	189.0
South Dakota	608.8	605.4	593.9	612.4	710.2
Tennessee	1,076.4	1,166.2	861.0	887.1	824.8
Texas	403.0	310.4	341.3	363.6	372.5

Table 31 (con.). Developed recreation use on National Forest System lands by State--fiscal years 1977-1981 (thousand recreation visitor days) 1/

State 2/	1981	1980	1979	1978	1977
Utah	**5,163.4**	5,045.1	4,640.2	4,285.0	4,225.3
Vermont	**446.0**	401.1	409.0	414.5	474.8
Virginia	**714.3**	687.5	632.9	649.6	659.2
Washington	**4,837.1**	4,811.1	5,238.0	5,181.9	4,370.3
West Virginia	**399.9**	402.2	360.9	464.0	601.4
Wisconsin	**566.6**	565.2	491.7	540.7	559.1
Wyoming	**2,216.9**	2,042.4	2,055.0	2,122.5	2,138.7
Total	**84,881.8**	85,611.5	81,861.3	79,630.5	73,776.0

1/ One recreation visitor-day is the recreation use of National Forest land or water that aggregates 12 visitor-hours. This may entail one person for 12 hours, 12 persons for 1 hour, or any equivalent combination of individual or group use, either continuous or intermittent.

2/ States not listed have no Forest Service recreation program.

Table 32. Dispersed recreation use on National Forest System lands by State--fiscal years 1977-1981 (thousand recreation visitor days) [1/]

State [2/]	1981	1980	1979	1978	1977
Alabama	905.3	954.0	882.2	885.5	880.0
Alaska	2,588.7	2,350.6	2,350.3	2,797.7	1,512.2
Arizona	11,594.6	11,844.3	8,483.4	6,804.8	7,779.3
Arkansas	1,756.7	1,829.4	2,025.4	2,089.6	2,132.3
California	32,570.3	34,101.9	31,947.1	32,669.8	28,627.0
Colorado	13,430.0	12,544.6	12,433.0	12,665.1	11,196.7
Flordia	1,513.6	1,695.4	1,806.9	2,035.4	1,922.8
Georgia	1,723.2	1,781.1	1,535.8	1,418.8	1,470.7
Idaho	7,617.4	7,133.6	7,014.3	6,679.3	6,671.7
Illinois	623.6	632.3	621.2	824.2	923.2
Indiana	584.9	578.0	541.1	596.2	811.1
Kansas	24.9	22.5	24.9	24.9	41.1
Kentucky	2,091.4	2,065.3	1,930.0	1,907.2	1,876.9
Louisiana	335.8	340.2	331.9	361.1	353.1
Maine	28.7	30.1	36.3	39.0	35.5
Michigan	4,160.1	4,029.6	3,685.5	4,123.8	4,168.6
Minnesota	3,570.8	3,425.9	2,999.1	3,104.5	2,889.7
Mississippi	1,012.5	944.5	942.2	790.4	767.1
Missouri	1,443.1	1,368.5	1,111.4	1,075.8	1,076.7
Montana	6,657.5	5,961.1	5,827.6	5,691.3	5,377.7
Nebraska	92.8	115.7	105.7	107.3	100.5
Nevada	1,345.5	1,344.1	1,103.5	1,130.2	1,107.7
New Hampshire	1,672.2	1,873.9	1,489.1	1,900.6	1,869.0
New Mexico	3,640.5	3,361.5	3,304.7	3,464.4	3,211.6
New York	15.4	14.2	11.7	8.4	28.5
North Carolina	3,846.4	3,777.1	3,252.8	3,041.3	2,475.1
North Dakota	117.3	112.8	107.7	114.0	112.8
Ohio	394.6	335.3	307.7	307.4	266.4
Oklahoma	316.9	313.5	315.4	386.6	412.9
Oregon	9,986.0	10,071.2	10,016.2	9,576.1	9,432.2
Pennsylvania	1,571.1	1,535.0	1,431.7	1,291.9	1,316.7
Puerto Rico	310.7	269.9	299.4	171.6	68.7
South Carolina	902.8	864.3	761.9	723.8	680.1
South Dakota	1,721.0	1,599.5	1,617.2	1,810.2	1,778.1
Tennessee	1,343.6	1,404.3	1,168.6	1,163.5	1,039.5
Texas	1,516.5	1,427.0	1,500.5	1,479.5	1,503.7

Table 32 (con.). Dispersed recreation use on National Forest System lands by State--fiscal years 1977-1981 (thousand recreation visitor days) 1/

State 2/	1981	1980	1979	1978	1977
Utah	9,254.1	9,015.9	7,860.9	7,495.2	7,116.7
Vermont	154.3	143.9	149.8	187.4	182.1
Virginia	2,839.0	2,640.5	2,659.6	2,637.1	2,611.5
Washington	9,018.3	8,080.5	8,338.5	8,875.6	8,797.1
West Virginia	945.8	998.3	920.0	1,181.3	1,228.2
Wisconsin	1,617.4	1,508.5	1,390.1	1,425.1	1,411.8
Wyoming	3,972.1	3,498.0	3,662.0	3,800.8	3,757.1
Total	150,827.4	147,937.8	138,304.3	138,863.8	131,021.4

1/ One recreation visitor-day is the recreation use of National Forest land or water that aggregates 12 visitor-hours. This may entail one person for 12 hours, 12 persons for 1 hour, or any equivalent combination of individual or group use, either continuous or intermittent.

2/ States not listed have no Forest Service recreation program.

Table 33. Total recreation use on National Forest System lands by State--fiscal years 1977-1981 (thousand recreation visitor days 1/)

State	1981	1980	1979	1978	1977
Alabama	1,196.0	1,252.1	1,153.9	1,157.2	1,144.4
Alaska	3,219.7	2,908.2	3,236.0	3,532.6	2,197.0
Arizona	17,830.5	17,744.9	13,839.1	11,811.7	
Arkansas	2,417.5	2,509.0	2,783.6	2,837.7	2,856.9
California	54,889.7	57,533.1	54,326.3	54,638.4	47,535.6
Colorado	23,068.4	22,488.7	22,039.4	21,234.0	18,034.1
Florida	3,028.3	3,273.9	3,229.1	3,523.8	3,433.3
Georgia	2,110.8	2,196.4	1,988.2	1,843.9	1,969.3
Idaho	11,259.9	10,797.3	10,540.5	9,871.8	9,655.7
Illinois	823.9	839.3	829.0	1,021.3	1,902.6
Indiana	774.8	781.4	739.6	787.5	1,011.6
Kansas	30.9	27.9	30.9	30.9	47.7
Kentucky	2,832.2	2,878.8	2,561.7	2,428.9	2,435.2
Louisiana	554.9	523.7	543.5	612.0	607.2
Maine	45.8	40.9	85.5	132.5	89.3
Michigan	5,646.7	5,486.8	5,015.7	5,502.8	5,545.7
Minnesota	4,617.3	4,599.4	4,150.3	4,405.2	4,180.1
Mississippi	1,261.3	1,203.3	1,227.8	1,038.3	997.0
Missouri	1,881.4	1,794.3	1,456.6	1,450.9	1,478.9
Montana	9,541.1	8,577.2	8,329.6	8,270.2	7,783.6
Nebraska	142.4	164.3	151.3	168.7	160.7
Nevada	2,402,6	2,364.3	2,077.9	1,952.3	1,832.1
New Hampshire	2,672.5	2,752.5	2,380.9	2,991.5	3,027.2
New Mexico	6,151.1	5,843.1	5,511.1	6,094.8	5,245.5
New York	24.5	23.6	20.7	17.9	39.7
North Carolina	5,243.5	5,252.8	4,490.6	4,172.9	3,565.7
North Dakota	133.4	126.8	120.6	129.1	127.8
Ohio	450.1	393.2	361.8	369.8	315.2
Oklahoma	398.4	389.1	392.8	468.9	509.8
Oregon	18,298.1	18,527.4	18.016.8	17.070.4	16,652.5
Pennsylvania	2,206.5	2,145.6	2,051.9	1,909.6	1,974.9
Puerto Rico	552.3	686.1	695.6	522.1	383.1
South Carolina	1,188.2	1,110.9	986.2	917.6	969.1
South Dakota	2,239.8	2,204.9	2,211.1	2,422.6	2,458.7
Tennessee	2,420.0	2,570.5	2,029.6	2.050.6	1,864.3
Texas	1,919.5	1,737.4	1,841.8	1,843.2	1,975.8

Table 33 (con.). **Total recreation use on National Forest System lands by State--fiscal years 1977-1981** (thousand recreation visitor days 1/)

State	1981	1980	1979	1978	1977
Utah	**14,417.5**	14,061.0	12,501.1	11,780.2	11 ,342.0
Vermont	**600.3**	545.0	558.8	601.9	656.9
Virginia	**3,553.3**	3,328.0	3,292.5	3,286.7	3,270.7
Washington	**13,855.4**	12,981.6	13,576.5	14,057.5	13,167.4
West Virginia	**1,345.7**	1,400.5	1,280.9	1,645.8	1,970.9
Wisconsin	**2,184.0**	2,073.7	1,881.8	1,965.8	1,970.9
Wyoming	**6,189.0**	5,540.4	5,717.0	5,923.3	5,895.8
Total	**235,709.2**	233,549.3	220,166.6	218,494.3	204,797.4

1/ One recreation visitor-day is the recreation use of National Forest land or water that aggregates 12 visitor-hours. This may entail one person for 12 hours, 12 persons for 1 hour or any equivalent combination of individual or group use, either continuous or intermittent.

2/ States not listed have no Forest Service recreation program.

Table 34. State summary of developed recreation use on National Forest System lands by site--fiscal year 1981
(thousand recreation visitor-days 1/)

State 2/	Interpretive, observation, & documentary sites	Trail heads	Swimming, boating, & fishing sites	Camp grounds	Picnic, organi. & sports sites	Hotels, lodges, resorts & concession	Recreation residences	Winter sports	Total developed use
Alabama	9.4	--	87.9	107.6	22.8	--	--	--	290.7
Alaska	89.9	12.1	15.9	125.3	72.9	224.6	22.4	67.9	631.0
Arizona	190.2	6.3	940.9	3,271.2	1,129.[illegible]	293.5	331.6	72.9	6,235.9
Arkansas	50.7	--	118.7	380.4	92.5	8.1	10.4	--	660.8
California	397.3	56.1	648.7	10,271.4	3,580.1	1,6[illegible].1	2,951.8	2,737.9	22,319.4
Colorado	742.1	195.2	157.0	3,968.2	736.7	382.1	297.2	3,159.9	9,638.4
Florida	19.2	--	212.7	771.6	389.5	--	121.7	--	1,514.7
Georgia	34.5	--	26.4	229.8	68.4	--	28.5	--	387.6
Idaho	146.8	6.7	234.9	1,908.3	368.7	214.7	279.6	482.8	3,642.5
Illinois	37.2	.6	29.9	87.0	45.6	--	--	--	200.3
Indiana	4.8	11.4	46.6	107.8	19.3	--	--	--	189.9
Kansas	--	--	--	--	6.0	--	--	--	6.0
Kentucky	69.3	--	139.3	389.8	131.2	--	11.2	--	740.8
Louisiana	7.5	--	37.7	70.7	74.9	--	28.3	--	219.1
Maine	.9	--	--	8.7	3.1	--	--	4.4	17.1
Michigan	51.9	--	254.0	839.7	117.4	2.6	77.3	113.7	1,486.6
Minnesota	8.1	.2	209.4	411.8	77.6	132.8	154.8	51.8	1,046.5
Mississippi	2.5	--	102.9	107.6	35.8	--	--	--	248.8
Missouri	6.4	.1	35.1	252.9	143.8	--	--	--	438.3
Montana	131.5	21.6	213.4	1,364.1	271.9	135.4	231.2	514.5	2,883.6
Nebraska	.2	.3	1.3	14.6	33.2	--	--	--	49.6
Nevada	17.9	16.6	60.7	510.0	210.5	101.3	27.3	112.8	1,057.1
New Hampshire	88.0	--	23.4	460.3	111.1	73.2	--	244.3	1,000.3
New Mexico	213.2	.7	52.5	1,201.1	457.4	70.1	80.2	435.4	2,510.6
New York	--	1.9	--	6.9	.3	--	--	--	9.1
North Carolina	308.8	3.6	177.0	685.7	203.2	13.4	5.4	--	1,397.1
North Dakota	.3	--	--	13.7	2.1	--	--	--	16.1
Ohio	.8	--	6.5	27.6	20.6	--	--	--	55.5
Oklahoma	20.4	--	14.3	26.7	20.1	--	--	--	81.5
Oregon	471.1	76.7	451.9	4,289.8	1,117.3	912.0	412.5	580.8	8,312.1
Pennsylvania	51.8	--	83.2	402.6	46.6	--	51.2	--	635.4

Table 34 (con.). State summary of developed recreation use on National Forest System lands by site--fiscal year 1981
(thousand recreation visitor-days 1/)

State 2/	Interpretive, observation, & documentary sites	Trail heads	Swimming, boating, & fishing sites	Camp grounds	Picnic, organi. & sports sites	Hotels, lodges, resorts & concession	Recreation residences	Winter sports	Total developed use
Puerto Rico	105.8	--	--	--	114.6	17.5	3.7	--	241.6
South Carolina	3.9	--	36.9	162.8	81.8	--	--	--	285.4
South Dakota	33.6	1.0	43.4	312.4	84.5	26.0	91.7	16.2	608.8
Tennessee	30.0	.5	118.3	567.8	228.9	36.3	94.6	--	1,076.4
Texas	5.1	--	80.5	257.1	38.7	31.6	--	--	403.0
Utah	88.0	17.6	249.8	2,755.6	457.0	554.9	277.6	762.9	5,163.4
Vermont	3.0	--	4.7	44.1	20.5	8.8	.5	364.4	446.0
Virginia	48.6	3.3	52.8	441.0	167.3	.7	.6	--	714.3
Washington	94.2	26.7	157.1	2,523.3	471.5	412.0	490.9	661.4	4,837.1
West Virginia	13.4	--	21.8	277.7	84.8	1.5	.7	--	399.9
Wisconsin	9.3	--	128.9	383.7	21.5	4.1	10.6	8.5	566.6
Wyoming	62.2	39.4	84.8	1,136.1	221.8	277.3	197.2	198.1	2,216.9
Total	3,669.8	498.6	5,361.2	41,227.5	11,632.8	5,610.6	6,290.7	10,590.6	84,881.8

1/ One recreation visitor-day is the recreation use of National Forest land or water that aggregates 12 visitor-hours. This may entail one person for 12 hours, 12 persons for 1 hour, or any equivalent combination of individual or group use, either continuous or intermittent.

2/ States not listed have no Forest Service recreation program.

Table 35. State summary of dispersed recreation use on National Forest System lands--fiscal year 1981
(thousand recreation visitor-days 1/)

State 2/	Roads	Trails	Lakes and ponds	Reservoirs	Rivers and streams	General undeveloped area	Total dispersed use
Alabama	324.3	42.9	4.4	103.2	76.0	354.5	903.5
Alaska	444.2	262.6	149.7	.5	112.9	1,618.8	2,588.7
Arizona	5,687.9	689.8	33.4	1,035.9	90.7	3,246.9	11,594.6
Arkansas	382.6	44.5	--	409.9	147.4	772.3	1,756.7
California	13,868.4	2,673.9	790.8	2,961.0	2,418.0	9,858.2	32,570.3
Colorado	5,048.8	1,708.7	402.3	677.0	713.1	4,880.1	13,430.0
Florida	322.5	14.3	277.6	13.9	174.3	711.0	1,513.6
Georgia	524.5	141.6	--	137.4	218.4	701.3	1,723.2
Idaho	2,222.4	943.9	322.4	258.1	901.5	2,969.1	7,617.4
Illinois	92.6	82.6	.6	73.4	8.6	364.8	623.6
Indiana	136.3	40.2	--	194.9	22.6	190.9	584.9
Kansas	18.8	--	--	1.1	--	5.0	24.9
Kentucky	812.5	186.3	--	488.7	201.1	402.8	2,091.4
Louisiana	84.7	40.3	--	41.7	27.4	141.7	335.8
Maine	2.5	7.2	2.2	1.0	2.6	13.2	28.7
Michigan	1,779.3	240.3	338.9	20.9	292.5	1,488.2	4,160.1
Minnesota	541.5	167.3	1,288.5	2.5	200.5	1,370.5	3,570.8
Mississippi	321.2	17.4	7.9	42.7	76.7	546.6	1,012.5
Missouri	485.1	52.3	.2	62.0	217.3	626.2	1,331.1
Montana	2,337.4	790.0	290.0	217.1	401.9	2,260.2	6,657.5
Nebraska	23.8	6.6	--	5.7	.6	56.1	92.8
Nevada	479.0	140.3	18.9	3.7	79.1	624.5	1,345.5
New Hampshire	728.0	546.7	6.3	2.3	41.6	347.3	1,672.2
New Mexico	1,085.3	360.9	24.9	103.5	228.4	1,837.5	3,540.5
New York	.7	4.5	--	1.4	--	8.8	15.4
North Carolina	1,228.8	406.3	12.0	187.2	394.0	1,618.1	3,846.4
North Dakota	26.3	--	--	7.6	5.2	78.2	117.3
Ohio	88.1	50.1	--	20.6	22.9	212.9	394.6
Oklahoma	179.2	9.4	--	25.0	11.8	91.5	316.9
Oregon	3,816.7	802.6	550.4	447.8	775.7	3,592.8	9,986.0
Pennsylvania	426.8	62.9	--	150.9	120.1	810.4	1,571.1

Table 35 (con.). State summary of dispersed recreation use on National Forest System lands--fiscal year 1981
(thousand recreation visitor-days 1/)

State 2/	Roads	Trails	Lakes and ponds	Reservoirs	Rivers and streams	General undeveloped area	Total dispersed use
Puerto Rico	101.5	22.2	--	--	64.5	122.5	310.7
South Carolina	308.9	32.7	.3	55.1	121.7	384.1	902.8
South Dakota	1,291.2	27.1	--	107.8	34.1	260.8	1,721.0
Tennessee	441.0	150.3	--	121.5	191.7	439.1	1,343.6
Texas	196.9	27.4	.3	927.3	24.6	340.0	1,516.6
Utah	3,094.3	730.4	245.2	694.9	522.0	3,967.3	9,254.1
Vermont	74.4	18.8	2.4	1.0	5.0	52.7	154.3
Virginia	990.8	209.0	--	103.6	214.9	1,320.7	2,839.0
Washington	3,124.8	1,084.7	373.3	89.5	511.8	3,834.2	9,018.3
West Virginia	289.4	73.0	.9	33.5	129.7	419.3	945.8
Wisconsin	614.6	91.6	272.5	19.4	92.8	526.5	1,617.4
Wyoming	1,367.2	436.7	119.4	123.4	326.2	1,599.2	3,972.1
Total	55,415.2	13,441.3	5,536.6	9,975.6	11,031.9	55,426.8	150,827.4

1/ One recreation visitor-day is the recreation use of National Forest land or water that aggregates 12 visitor-hours. This may entail one person for 12 hours, 12 persons for 1 hour, or any equivalent combination of individual or group use, either continuous or intermittent.

2/ States not listed have no Forest Service recreation program.

Table 36. State summary of total recreation use on National Forest System lands by activity --fiscal year 1981 (thousand recreation visitor-days 1/)

State 2/	Camping	Picnicking	Travel (mechanized)	Water sports	Winter sports	Fishing	Hunting
Alabama	201.5	71.2	299.1	168.2	--	76.3	217.3
Alaska	246.2	76.0	278.4	718.0	110.0	437.3	282.6
Arizona	4,636.8	1,044.0	5,697.7	1,367.4	139.1	767.6	737.7
Arkansas	500.0	151.7	362.0	340.9	--	314.3	459.2
California	14,842.0	1,548.8	14,095.9	3,659.2	3,133.4	3,221.0	1,321.3
Colorado	5,522.7	814.7	5,494.2	249.3	2,928.9	1,671.8	1,216.8
Florida	992.4	412.7	284.6	436.5	--	191.2	332.2
Georgia	481.8	58.6	487.2	136.0	3.0	232.7	314.6
Idaho	2,869.9	453.7	2,641.7	676.6	538.2	960.0	852.2
Illinois	124.8	54.6	156.0	60.9	.5	42.4	159.3
Indiana	167.3	22.9	109.0	135.0	--	123.3	99.7
Kansas	1.4	6.5	18.6	.2	.1	.5	1.8
Kentucky	437.6	139.3	705.1	534.9	1.7	255.6	177.7
Louisiana	85.8	30.2	81.2	41.7	--	46.2	91.2
Maine	9.1	2.3	2.4	1.5	4.7	4.1	9.3
Michigan	1,346.9	136.9	1,963.0	407.1	157.0	405.2	646.2
Minnesota	1,361.7	61.1	608.5	839.4	118.9	787.3	309.0
Mississippi	191.3	61.1	298.0	125.2	--	56.5	410.7
Missouri	394.5	110.8	448.2	233.3	--	108.0	323.3
Montana	1,994.6	346.4	2,452.6	345.9	476.5	754.1	864.8
Nebraska	24.1	21.4	18.1	3.1	.1	5.2	24.2
Nevada	628.2	179.6	307.9	154.5	134.5	92.4	144.5
New Hampshire	582.0	124.7	596.7	54.5	251.6	21.0	37.9
New Mexico	1,435.6	541.6	1,125.3	88.6	440.1	413.5	470.4
New York	8.5	2.5	1.1	--	.4	1.3	5.4
North Carolina	911.8	285.1	1,157.2	375.8	2.5	307.8	810.7
North Dakota	14.0	8.9	18.8	3.3	1.2	7.6	58.3
Ohio	45.6	31.0	95.6	18.5	.9	24.0	127.5
Oklahoma	46.7	23.2	153.4	21.0	--	22.0	57.2
Oregon	5,300.3	694.0	3,814.1	1,145.8	665.1	1,185.7	1,144.7
Pennsylvania	535.3	52.0	369.2	154.3	2.6	254.4	498.0

Table 36 (con.). **State summary of total recreation use on National Forest System lands by activity --fiscal year 1981** (thousand recreation visitor-days 1/)

State 2/	Camping	Picnicking	Travel (mechanized)	Water sports	Winter sports	Fishing	Hunting
Puerto Rico	7.2	181.4	36.4	66.2	--	--	--
South Carolina	197.8	70.4	290.0	104.5	--	80.1	237.1
South Dakota	297.6	71.1	1,283.9	83.8	31.3	81.7	103.4
Tennessee	671.9	214.3	462.4	265.2	.3	148.5	213.6
Texas	386.8	33.5	200.2	165.7	--	834.3	176.4
Utah	4,421.6	705.1	2,991.6	399.9	798.9	1,170.5	844.0
Vermont	52.1	11.6	67.0	4.6	347.8	5.0	27.9
Virginia	732.8	163.3	839.7	73.3	3.4	293.4	594.3
Washington	4,233.0	425.9	2,538.9	361.8	734.7	718.6	978.2
West Virginia	461.5	47.9	254.4	29.7	2.6	154.2	209.2
Wisconsin	438.8	32.0	660.4	243.1	30.7	221.5	352.4
Wyoming	1,786.2	183.2	1,432.3	155.0	201.6	474.7	470.6
Total	59,627.7	9,707.2	55,198.0	14,449.4	11,252.5	16,972.8	16,412.8

1/ One recreation visitor-day is the recreation use of National Forest land or water that aggregates 12 visitor-hours. This may entail one person for 12 hours, 12 persons for 1 hour, or any equivalent combination of individual or group use, either continuous or intermittent.

2/ States not listed have no Forest Service recreation program.

Table 36 (con.). State summary of total recreation use on National Forest System lands by activity—fiscal year 1981 (thousand recreation visitor-days 1/)

State 2/	Hiking & mountain climbing	Horseback riding	Recreation cabin use	Nature study	Sightseeing	Visitor information service users	Other developed site use	Total use
Alabama	61.5	7.3	--	56.4	12.6	22.1	2.5	1,196.0
Alaska	213.7	6.6	155.4	122.3	402.8	113.7	56.7	3,219.7
Arizona	718.4	252.3	331.6	598.2	595.2	302.3	642.2	17,830.5
Arkansas	91.4	36.0	10.4	48.4	20.0	54.8	28.4	2,417.5
California	2,557.4	542.9	2,930.2	1,220.5	1,493.3	651.1	3,672.7	54,889.7
Colorado	1,605.2	459.8	297.4	559.7	1,047.5	592.0	608.4	23,068.4
Florida	48.0	28.8	121.7	49.2	33.1	38.2	59.7	3,028.3
Georgia	188.5	22.8	28.5	24.6	87.1	26.3	19.1	2,110.8
Idaho	420.0	258.5	281.6	512.0	233.7	192.[illegible]	369.0	11,259.9
Illinois	49.4	50.7	--	16.	67.2	38.5	3.6	823.9
Indiana	43.4	47.7	--	18.4	1.6	6.5	--	774.8
Kansas	.5	.2	--	1.0	--	--	.1	30.9
Kentucky	248.4	40.8	11.2	34.5	113.3	93.3	38.83	2,832.2
Louisiana	45.0	6.3	28.3	16.0	4.5	13.0	65.5	554.9
Maine	5.9	--	--	3.1	.5	1.4	1.5	45.8
Michigan	129.7	39.9	77.3	179.0	92.8	49.2	16.5	5,646.7
Minnesota	95.7	6.7	154.8	89.1	15.3	45.9	123.9	4,617.3
Mississippi	50.4	22.4	--	26.5	6.2	11.6	1.4	1,261.3
Missouri	71.2	39.8	--	66.3	35.0	24.5	26.5	1,881.4
Montana	581.0	330.0	231.3	522.2	209.6	247.2	184.9	9,541.1
Nebraska	10.3	3.2	--	13.4	.1	8.5	10.7	142.4
Nevada	161.9	94.4	22.9	80.1	56.1	205.5	140.1	2,402.6
New Hampshire	479.6	.4	--	38.9	379.9	34.0	71.3	2,672.5
New Mexico	446.0	130.9	80.2	420.7	236.7	196.0	125.5	6,151.1
New York	1.6	1.8	--	1.9	--	--	--	24.5
North Carolina	532.3	73.8	5.2	216.2	393.2	153.0	18.8	5,243.5
North Dakota	2.7	3.6	--	3.9	9.0	2.0	.1	133.4
Ohio	39.3	26.3	--	21.9	6.2	10.9	2.4	450.1
Oklahoma	17.0	4.3	--	7.7	32.6	13.1	.2	398.4
Oregon	888.3	208.5	412.3	639.5	216.6	356.7	996.5	18,298.1
Pennsylvania	85.9	5.0	51.2	37.1	124.2	16.1	21.2	2,206.5

Table 36 (con.). State summary of total recreation use on National Forest System lands by activity--fiscal year 1981 (thousand recreation visitor-days 1/)

State 2/	Hiking & mountain climbing	Horseback riding	Recreation cabin use	Nature study	Sightseeing	Visitor information service users	Other developed site use	Total use
Puerto Rico	40.1	--	3.7	12.8	30.8	143.4	30.3	552.3
South Carolina	43.0	36.3	--	52.6	24.9	33.1	18.4	1,188.2
South Dakota	62.1	32.9	91.7	55.4	46.5	31.8	56.6	2,329.8
Tennessee	144.0	27.3	94.6	29.1	58.4	28.2	62.2	2,420.0
Texas	24.9	6.1	--	14.1	43.0	14.5	20.0	1,919.5
Utah	734.3	300.0	276.5	421.6	446.0	115.5	792.0	14,417.5
Vermont	20.5	1.5	.5	4.4	30.6	5.0	21.7	600.3
Virginia	224.5	77.0	.6	152.1	316.5	30.2	52.2	3,553.3
Washington	1,088.4	229.0	490.9	430.0	817.0	202.1	606.9	13,855.4
West Virginia	88.9	4.6	1.7	24.7	8.8	19.1	38.4	1,345.7
Wisconsin	43.3	9.0	10.6	106.5	7.6	23.9	4.2	2,184.0
Wyoming	387.8	175.5	197.2	126.3	139.3	71.7	387.6	6,189.0
Total	12,791.4	3,650.9	6,399.5	7.074.3	8,525.3	4,238.7	9,398.7	235,709.2

1/ One recreation visitor-day is the recreation use of National Forest land or water that aggregates 12 visitor-hours. This may entail one person for 12 person hours, 12 person for 1 hour, or any equivalent combination of individual or group use, either continuous or intermittent.

2/ States not listed have no Forest Service recreation program.

Table 37. **Status of the National Wilderness Preservation System--selected calender years** (thousand acres)

State 1/	1981	1980	1979	1977	1975
Alabama	13	13	13	13	13
Alaska	5,362	5,362	--	--	--
Arizona	557	557	557	496	496
Arkansas	25	25	25	25	24
California	2,138	2,138	2,131	1,726	1,703
Colorado	2,620	2,620	1,192	1,046	681
Florida	23	23	23	23	23
Georgia	32	32	32	32	32
Idaho	3,825	3,825	1,490	1,285	1,205
Kentucky	5	5	5	5	5
Louisiana	9	9	--	--	--
Minnesota	793	793	793	749	749
Missouri	40	40	12	12	--
Montana	3,107	3,107	3,088	1,792	1,796
Nevada	65	65	65	65	65
New Hampshire	26	26	26	26	26
New Mexico	1,402	1,402	794	676	679
North Carolina	31	31	31	31	31
Oregon	1,223	1,223	1,212	951	842
South Carolina	17	17	3	3	3
South Dakota	11	11	--	--	--
Tennessee	8	8	8	8	8
Utah	30	30	30	--	--
Vermont	17	17	17	17	17
Virginia	9	9	9	9	9
Washington	1,501	1,501	1,501	1,390	1,085
West Virginia	30	30	30	30	30
Wisconsin	20	20	20	7	6
Wyoming	2,194	2,194	2,193	1,178	1,987
Total	25,133	25,133	15,300	12,595	11,514

1/ States not listed have no acres in the National Wilderness Preservation System.

Table 38. Additions to the National Wilderness Preservation System--fiscal year 1981

Public Law	State	Number of new areas	Number of additions	Number of adjustments	Acres
96-487	Alaska	14	--	--	5,456,731
96-550	New Mexico	8	4	--	609,000
96-560	Colorado	14	6	1	1,424,435
	Louisiana	1	--	--	8,700
	Missouri	4	--	--	27,650
	South Carolina	4	--	--	13,720
	South Dakota	1	--	--	10,700
Total					7,550,936

An annual report of the status of the National Forest units of the National Wilderness Preservation System is required by Congress. The Seventeenth Annual Wilderness Report (as of December 31, 1980) provides detailed wilderness data.

Table 39. Additions to the National Wild and Scenic Rivers System--fiscal year 1981.

River	State	Date	Miles 1/
American	California	1/19/80	23
Eel	California	1/19/80	394
Klamath	California	1/19/80	286
Smith	California	1/19/80	329
Trinity	California	1/19/80	203
Total			1,235

1/ Total mileage; NFS portion approximately 500 miles.

Table 40. Wildlife and fish habitat improvement by Region--fiscal year 1981 (acres)

Region	Wildlife	Resident Fish	Anadromous Fish	Threatened, Endangered & Sensitive Species	Knutson-Vandenberg	Subtotal	Support to other resource elements 1/	Total
Northern	6,967	835	558	603	3,522	12,485	22,031	34,516
Rocky Mountain	22,897	506	--	240	1,270	24,913	43,662	68,575
Southwestern	25,318	490	--	1,433	16,102	43,343	110,330	153,673
Intermountain	25,983	235	527	689	3,039	30,473	35,622	66,095
Pacific Southwest	13,828	539	440	19,161	18,040	52,008	30,398	82,406
Pacific Northwest	28,417	1,088	482	1	11,481	41,469	166,216	207,685
Southern	136,134	3,601	--	38,848	55,011	233,594	38,604	272,198
Eastern	17,644	5,951	351	14,606	3,845	42,397	7,694	50,091
Alaska	900	--	1,310	--	--	2,210	20	2,230
Total	278,088	13,245	3,668	75,581	112,310	482,892	454,577	937,469

1/ Excludes work done with K-V funds.

Table 41. Range allotment management by Region--fiscal year 1981

Region	Number of Allotments			Acres	
	Total	Improved management started	Improved management maintained	Total	Suitable
Northern	2,124	59	1,180	11,042,749	4,000,919
Rocky Mountain	2,699	244	1,830	19,829,313	8,647,711
Southwestern	1,502	79	989	20,661,069	13,869,090
Intermountain	2,022	71	1,114	26,628,492	16,086,218
Pacific Southwest	843	77	595	9,415,825	3,087,511
Pacific Northwest	870	80	474	13,874,401	3,087,511
Southern	614	35	357	3,750,039	2,248,349
Eastern	197	32	166	90,536	42,951
Total	10,871	677	6,705	105,292,423	56,085,379

Table 42. Range allotment management--fiscal years 1978-1981

	1981	1980	1979	1978
Total allotment	10,871	10,751	10,967	10,957
Improved management started (number of allotments)	677	1,236	897	815
Improved management maintained (number of allotments)	6,705	6,378	5,698	6,289
Total acres (Million acres)	105	112	109	107
Suitable acres (Million acres)	56	58	50	51
Permitted use (Million AUM's)	9.8	9.8	9.8	9.9
Actual use (Million AUM's)	8.8	8.8	8.8	9.0

Table 43. **Actual grazing use by State--fiscal year 1981** (animal unit months)

States 1/	Cattle	Sheep	Domestic horses	Wild horses	Wild burros	Total
Alabama	3,538	--	--	--	--	3,538
Arizona	1,202,426	22,548	12,160	72	115	1,237,321
Arkansas	45,473	--	240	--	--	45,713
California	469,061	59,044	11,619	15,495	912	556,131
Colorado	830,492	165,705	16,744	--	--	1,012,941
Flordia	17,142	--	--	--	--	17,142
Georgia	6,009	--	--	--	--	6,009
Idaho	610,430	231,374	23,659	101	22	865,586
Illinois	11,043	2,238	47	--	--	13,328
Indiana	447	--	--	--	--	447
Kansas	57,386	--	103	--	--	57,489
Louisiana	45,520	--	1,136	--	--	46,656
Michigan	310	--	--	--	--	310
Minnesota	1,770	--	--	--	--	1,770
Mississippi	11,782	--	--	--	--	11,782
Missouri	32,681	--	7	--	--	32,688
Montana	546,284	21,998	13,717	29	--	582,028
Nebraska	126,388	59	38	--	--	126,485
Nevada	237,660	47,644	879	6,085	160	292,428
New Mexico	735,093	29,399	8,814	1,898	230	775,434
New York	8,870	--	7	--	--	8,877
North Carolina	15	--	--	--	--	15
North Dakota	484,388	470	3,452	--	--	488,310
Ohio	844	--	--	--	--	844
Oklahoma	23,510	--	--	--	--	23,510
Oregon	508,336	41,097	4,127	6,264	--	559,824
South Carolina	341	--	--	--	--	341
South Dakota	420,151	4,964	2,005	--	--	427,120
Texas	59,346	--	249	--	--	59,595
Utah	479,926	204,793	7,487	701	--	692,907
Vermont	99	--	--	--	--	99
Virginia	5,606	187	1,005	--	--	6,798
Washington	104,770	8,781	5,164	--	--	118,715
West Virginia	10,218	250	66	--	--	10,534
Wisconsin	161	--	1	--	--	162
Wyoming	565,497	139,633	19,705	--	--	724,835
Total	7,663,013	980,184	132,431	30,645	1,439	8,807,712

1/ States not listed had no Forest Service grazing program in 1981.

Table 44. Annual grazing statistics--fiscal year 1981

		Cattle		Horses and Burros		Sheep and Goats		Total	
	Permittees 1/	Thousand	Thousand AUM's 4/	Thousand	Thousand AUM's	Thousand	Thousand AUM's	Thousand	Thousand AUM's
Authorized to graze		1,544.7	8,506.3	148.2	128.3	1,714.1	1,191.2	3,407.0	9,825.8
Actually Grazed:									
Paid Permits	15,291	1,310.3	7,620.0	21.6	71.3	1,261.7	969.4	2,593.6	8,660.7
Free Use:									
Recreation stock	89,374	.3	.2	155.9	51.0	--	--	156.6	51.2
Other Free use	3,323	2.3	18.0	4.0	5.5	3.8	5.5	10.2	29.0
Non-NFS lands	(202)	(59.9)	(472.2)	(.4)	(5.9)	(28.3)	(24.6)	(88.6)	(502.7)
Crossing	78	32.2	3.6	.1	.1	74.4	4.5	106.7	8.2
Unauthorized use	346	4.6	21.2	.4	4.5	.9	.7	5.9	26.4
Subtotal 2/	108,412	1,349.7	7,663.0	182.0	132.4	1,340.8	980.2	2,872.5	8,775.6
Wild Horses				2.8	30.7			2.8	30.7
Wild Burros				.2	1.4			.2	1.4
Total Actually Grazed	108,412	1,349.7	7,663.0	185.0	164.5	1,340.8	980.2	2,875.5	8,807.7
Losses									
Poisonous Plants		1.3		--		2.5		3.8	
Predators		.8		.2		19.2		20.2	
Other 3/		4.7		.1		8.2		13.0	

1/ Permittees holding paid permits are not counted in other categories.
2/ Non-NFS land data not included in totals.
3/ Includes losses due to thievery natural death, and accidental death.
4/ An animal unit month (AUM) is the amount of grazing required by a 1,000 pound cow for 1 month.

Table 45. Range improvements by type--fiscal year 1981

Improvement Type	Unit of measure	Units of construction completed	Total Cost
Structural:			
Water developments	sites	2,355	3,086,769
Range Fence	miles	1,579	4,487,839
Pipeline	miles	268	1,474,245
Other structural facilities	sites	371	686,186
Subtotal			9,735,039
Nonstructural			
Cover mainipulation, brush	acres	80,994	1,008,203
Range plant control	acres	14,991	359,844
Forage improvement	acres	81,537	1,136,614
Noxious farm weed control	acres	20,704	699,752
Subtotal			3,204,413
Total			12,939,452

Table 46. Road and bridge construction and reconstruction by State--fiscal year 1981

State 1/	From appropriated funds			By timber purchasers		
	Road miles	Number of bridges	Thousand dollars	Road miles 2/	Number of bridges	Thousand dollars
Alabama	20.0	4	1,956	33.0	--	1,016
Alaska	23.8	5	6,156	181.6	53	20,144
Arizona	67.9	--	5,420	547.3	--	5,209
Arkansas	31.0	2	5,063	118.0		2,755
California	72.0	4	37,784	1,228.6	7	35,442
Colorado	8.2	8	10,549	237.0	--	1,075
Flordia	10.0	--	1,021	69.0	--	972
Georgia	21.0	1	1,669	18.0	--	437
Idaho	64.0	18	19,802	680.1	--	14,738
Illinois	--	1	358	17.0	--	89
Indiana	0.1	--	371	1.0	--	8
Kentucky	17.0	--	2,300	18.0	--	403
Louisiana	--	5	1,044	71.0	12	1,992
Maine	--	--	72	--	--	--
Michigan	43.9	1	3,612	83.4	--	415
Minnesota	49.5	3	5,824	90.7	--	895
Mississippi	1.0	3	1,243	170.0	1	1,708
Missouri	14.7	--	1,356	56.9	--	292
Montana	201.8	13	25,072	644.4	1	12,368
Nevada	--	2	146	--	--	--
New Hampshire	0.2	1	565	2.5	--	63
New Mexico	45.7	1	5,842	140.1	--	2,364
New York	--	--	--	--	--	--
North Carolina	81.0	8	5,839	59.0	--	1,422
North Dakota	--	--	47	--	--	--
Ohio	--	--	51	--	--	--
Oklahoma	7.0	1	933	13.0	--	468
Oregon	66.8	7	43,088	1,737.0	8	64,356
Pennsylvania	23.3	--	2,415	20.7	--	716
Puerto Rico	--	--	94	--	--	--
South Carolina	41.0	6	1,993	101.0	--	1,124
South Dakota	--	--	1,453	83.0	--	793
Tennessee	23.0	2	1,646	22.0	--	452
Texas	16.0	--	1,237	33.0	--	1,284
Utah	49.3	5	8,364	74.2	--	810
Vermont	1.6	--	544	3.2	--	136
Virginia	47.0	4	3,943	10.0	--	265
Washington	32.7	5	20,980	537.6	1	26,048
West Virginia	42.6	1	3,460	6.0	--	303
Wisconsin	81.0	4	3,156	26.2	--	190
Wyoming	13.5	6	4,127	211.5	1	1,141
Total	1,217.6	121	240,595	7,345.0	84	201,893

1/ States not listed had no Forest Service road programs in 1981.
2/ Does not include 1,490.3 miles turned back to Forest Service for construction.

Table 47. Timber purchaser roads constructed by the Forest Service by State--fiscal year 1981

State	Road miles	Thousand dollars
Alabama	3.0	107
Arkansas	59.0	2,597
California	192.6	5,560
Colorado	50.9	622
Flordia	4.0	160
Idaho	102.3	2,156
Kentucky	2.0	77
Louisiana	17.0	615
Michigan	8.7	117
Minnesota	3.9	34
Mississippi	2.0	163
Montana	160.8	3,402
New Hampshire	0.8	56
New Mexico	146.9	2,288
North Carolina	1.0	26
Oklahoma	3.0	195
Oregon	386.0	14,199
Pennsylvania	16.2	308
South Dakota	71.8	646
Texas	24.0	791
Washington	232.0	12,075
Wisconsin	2.4	23
Total	1,490.3	46,217

1/ States not listed had no timber purchaser roads constructed by the Forest Service in 1981.

Table 48. State and Private Forestry funding--fiscal years 1979-1981
(constant 1981 dollars in thousands)

	1981				
	Actual	RPA	% of RPA	1980	1979
Forest Pest Management	**22,702**	23,162	98	22,648	28,949
Rural Fire Prevention and Control	**19,984**	14,004	143	24,485	36,494
Rural Forestry Assistance	**17,773**	19,669	90	14,715	16,806
Urban Forestry Assistance	**1,800**	--	--	3,623	4,311
Assistance in Management, Planning, and Technology Implementation	**4,930**	6,215	79	3,631	4,321
General Forestry Assistance	**6,995**	3,409	205	4,488	5,341
Total	**74,184**	66,459	112	73,590	96,222

Table 49. Summary of State and Private Forestry accomplishments compared to RPA and funded output levels--fiscal year 1981 appropriated accounts

	Unit of Measure [1]	Output level			Accomplishment Comparison	
		RPA	Funded	Actual	Change from funded level	Percent of funded level
Cooperative Resource Protection:						
Forest Pest Management:						
Insect & disease management surveys	MM acres	461.0	493.0	750.0	+ 257.0	152
Insect & disease suppression	MM acres	--	3.7	3.4	- .3	92
Cooperative Resource Management:						
Rural Forestry Assistance:						
Forest land management plans	MM acres	3.0	2.8	3.8	+ 1.0	136
Timber prepared for harvest	MM cubic ft.	237.0	168.0	196.0	+ 28.0	117
Reforestation [2]	M acres	545.0	434.0	497.0	+ 63.0	115
Timber stand improvement [2]	M acres	375.0	160.0	300.0	+ 140.0	188
Dispersed recreation development	M acres	109.0	101.0	113.0	+ 12.0	112
Wildlife habitat improvement	M acres	117.0	118.0	291.0	+ 173.0	247
Forested range improvement	M acres	65.0	44.0	120.0	+ 76.0	273
Woodland owners assisted	M owners	187.0	149.0	164.0	+ 15.0	110
Improved wood utilization	MM cubic ft.	134.0	141.0	178.0	+ 37.0	126
Seedling production	MM seedlings	--	742.0	754.0	+ 12.0	102
Urban Forestry Assistance	Urban areas assisted	--	1,803.0	3,547.0	+ 1,744.0	197
Assistance in Management, Planning, and Technology Implementation:						
State forest resource planning	MM acres	138.0	138.0	214.0	+ 76.0	155
Management assistance	Number assists	--	188.0	255.0	+ 67.0	136

1/ M = Thousand; MM = Million
2/ Includes Forestry Incentives Program and Agricultural Conservation Program accomplishments.

Table 50. Summary of State and Private Forestry funding and accomplishments compared to RPA and funded output level--fiscal year 1981 allocated accounts

	1981 (Thousand dollars) 1/		Unit of 2/	Output level			Accomplishment Comparison	
	RPA	Actual	Measure	RPA	Funded	Actual	Change from funded level	Percent of funded level
Rural Community Fire Protection, FmHA	--	3,500	Approved applications	--	2,816	3,026	+ 210.00	107%
Watershed and Flood Prevention, SCS	5,015	4,618	Projects	127	117	117	--	100%
Watershed Planning, SCS	277	344	Plans	43	52	52	--	100%
Resource Conservation and Development, SCS	930	946	Projects	60	65	65	--	100%
River Basin Surveys & Investigations, SCS	1,957	1,957	Plans	51	49	49	--	100%
Forestry Incentives Program, ASCS	15,000	12,500						
Reforestation			M acres	--3/	196.5	211.2	+ 14.7	107%
Timber stand improvement			M acres	--3/	84.8	102.6	+ 17.80	121%
Agricultural Conservation Program, ASCS	1,900	1,900						
Reforestation			M acres	--3/	--	53.3	--	--
Timber stand improvement			M acres	--3/	--	76.4	--	--
Total	25,079	25,765						

1/ Funds shown for Rural Community Fire Protection and Forestry Incentives Program are the full appropriations for those programs. Funds shown for the other programs are the amount allocated to the Forest Service for forestry portions of the programs.

2/ M = Thousand

3/ RPA targets for Forestry Incentives and Agricultural Conservation Programs were included in a total with those of Rural Forestry Assistance (see Table 49).

Table 51. 1981 Pesticide Use Report

Common name	Target pest/ purpose	Quantity used/treated Pounds 1/	Units 2/	
Herbicides:				
Amitrole	Conifer Release	889.00	482.00	(A)
Asulam	Conifer Release	289.00	91.00	(A)
	Site Preparation	54.00	16.00	(A)
Atrazine	Conifer Release	4,606.00	1,152.00	(A)
	Site Preparation	13,586.00	2,649.00	(A)
Dalapon	Conifer Release	1,030.00	120.00	(A)
	Site Preparation	3,888.00	778.00	(A)
Fosamine Ammonium	Conifer Release	946.00	222.00	(A)
	Rights-of-way	940.00	91.00	(A)
Glyphosate	Conifer Release	9,893.00	6,627.00	(A)
	Conifer Release/ Research	48.00	17.00	(A)
	Site Preparation	2,322.00	1,416.00	(A)
Hexazinone	Site Preparation	832.00	531.00	(A)
Picloram	Noxious Weeds	41.00	163.00	(A)
	Rights-of-way	47.00	49.00	(A)
	Site Preparation	5,617.00	1,110.00	(A)
Tebuthiuron	Range Improvement	52.00	40.00	(A)
Trichlopyr	Conifer Release/ Research	4.50	3.00	(A)
	Rights-of-way	1,209.00	1,135.00	(A)
2,4-D	Conifer Release	13,619.00	5,065.00	(A)
	Conifer Release/ Research	2.00	1.00	(A)
	Noxious Weeds	324.00	163.00	(A)
	Range Improvement	37,011.00	22,537.00	(A)
	Rights-of-way	1,030.00	879.00	(A)
	Site Preparation	7,285.00	2,540.00	(A)
2,4-D/Picloram 4:1	Rights-of-way	3,304.00	353.00	(A)
	Site Preparation	510.00	134.00	(A)
2,4-D/2,4-DP 2:2	Conifer Release	4,020.00	1,062.00	(A)
Amitrole	Conifer Release	274.00	119.00	
	General Weed Control	100.00	60.00	
	Poisonous Plant Control	136.00	73.00	
	Range Improvement	20.00	10.00	
	Rights-of-way	914.00	242.80	
Amitrole/Simazine	General Weed Control	2.00	1.00	
	Rights-of-way	345.00	44.00	
Ammonium Sulfamate	General Weed Control	2,362.00	144.00	
	Site Preparation	278.00	97.00	
	Wildlife Habitat Improvement	360.00	19.00	
Asulam	Conifer Release	47.00	14.00	
	Grass Control	17.00	5.00	
Atrazine	Conifer Release	989.00	380.00	
	General Weed Control	75.00	6.25	
	General Weed Control	20.00	8.00	Side Miles
	Grass Control	176.00	103.00	
	Noxious Weeds	118.00	95.00	
	Rights-of-way	425.00	205.50	
	Site Preparation	1,729.80	1,370.00	

Table 51 (con.). 1981 Pesticide Use Report

Common name	Target pest/ purpose	Quantity used/treated Pounds 1/	Units 2/	
Herbicides: (Cont.)				
Bifenox	Nursery Weeds	915.00	183.50	
	Site Preparation	4.00	1.00	
Bromacil	General Weed Control	67.30	6.34	
	Rights-of-way	1,358.00	239.25	
Bromacil/Diuron	Firebreak Management	221.00	28.00	
	General Weed Control	25.00	6.25	
	Rights-of-way	106.00	39.00	
Cacodylic Acid	Rights-of-way	230.00	49.00	
Chloramben	General Weed Control	140.00	80.00	
Dacthal	Nursery Weeds	929.00	138.50	
Dalapon	Aquatic Weed Control	18.00	2.00	
	Conifer Release	295.00	769.00	
	Grass Control	216.00	32.00	
	Rights-of-way	349.00	273.00	
	Site Preparation	6,508.00	2,286.00	
Dalapon/TCA	Rights-of-way	390.00	26.00	
DCPA	Nursery Weeds	2,573.50	69.50	
Dicamba	Conifer Release	171.00	94.00	
Dicamba	Hardwood Release	4.00	2.00	
Dicamba	Noxious Weeds	3,215.00	2,392.00	
	Range Improvement	244.75	105.00	
	Rights-of-way	17.00	3.50	
Dichlobenil	General Weed Control	2.60	.25	Sq Ft
	Grass Control	2.00	.20	
Diphenamid	Nursery Weeds	764.40	77.75	
Diquat	Aquatic Weed Control	64.00	32.00	
Diuron	General Weed Control	352.00	1.60	
	Range Improvement	50.00	.25	
	Rights-of-way	943.00	381.00	
DSMA/Bromacil/ 2,4-D	Range Improvement	463.60	347.00	
Endothall	Aquatic Weed Control	351.00	33.00	
EPTC	Grass Control	362.00	59.00	
Fosamine Ammonium	Noxious Weeds	28.00	50.00	
	Rights-of-way	1,580.00	498.00	
	Rights-of-way	2,032.00	1,040.00	Side Miles
	Site Preparation	1,100.00	96.00	
	Wildlife Habitat Improvement	67.00	45.00	
Glyphosate	Conifer Release	897.50	1,033.60	
	Conifer Release/ Research	18.00	6.00	
	General Weed Control	116.10	84.85	
	Grass Control	2.00	10.00	
	Noxious Weeds	687.00	902.00	
	Nursery Weeds	451.00	85.00	
	Poisonous Plant Control	119.00	57.00	
	Range Improvement	82.00	82.00	
	Research	5.25	5.50	
	Research	32.00	1,000.00	Trees
	Research	39.83	33.90	

Table 51 (con.). 1981 Pesticide Use Report

Common name	Target pest/ purpose	Quantity used/treated Pounds 1/	Units 2/	
Herbicides: (Cont.)				
Glyphosate	Rights-of-way	836.00	237.00	
	Site Preparation	2,073.80	1,891.60	
Hexazinone	Conifer Release	2,580.00	2,137.00	
	General Weed Control	140.00	61.00	
	Nursery Weeds	14.00	7.00	
	Research	40.00	12.00	
	Site Preparation	2,850.00	1,766.00	
	Site Preparation/ Research	1.06	.05	
	Wildlife Habitat Improvement	30.00	36.00	
Linuron	General Weed Control	30.00	15.00	
Maleic Hydrazide	Grass Control	50.00	20.00	
	Rights-of-way	223.00	55.00	
MCPA	General Weed Control	18.00	4.00	
MSMA	Mistletoe	234.00	800.00	
	Conifer Release	67.00	51.00	
	Rights-of-way	280.00	85.00	
	Thinning	36.00	4.00	
Napropamide	Nursery Weeds	135.50	38.01	
Oxyfluourfen	General Weed Control	3.00	6.00	
	Nursery Weeds	168.00	167.00	
Picloram	Conifer Release	48.00	110.00	
	Firebreak Management	3,108.00	318.00	
	Noxious Weeds	15,276.00	5,107.00	
	Poisonous Plant Control	247.00	186.00	
	Range Improvement	2,319.67	4,150.56	
	Range Improvement/ Research	16.90	26.00	
	Research	12.00	6.00	
	Rights-of-way	24.00	49.00	
	Site Preparation	1,504.00	382.00	
	Wildlife Habitat	5,461.00	3,533.00	
Prometon	Rights-of-way	4,103.00	194.00	
Simazine	Aquatic Weed Control	288.00	180.00	
	General Weed Control	105.00	51.25	
	Grass Control	223.00	10.00	
	Grass Control	.30	150.00	Trees
	Hardwood Release	8.00	2.00	
	Nursery Weeds	39.50	11.52	
	Rights-of-way	5,445.00	451.00	
	Rights-of-way	70.00	1,150.00	Posts
	Rights-of-way	536.00	47.00	Side Miles
	Site Preparation	248.00	48.00	
Sodium Chlorate	Grass Control	1.00	1.00	
Sodium Metaborate Tetra	General Weed Control	25.00	1.00	
Tebuthiuron	General Weed Control	40.60	12.75	
	Range Improvement	504.00	168.00	
	Range Improvement/ Research	17.40	26.00	

Table 51 (con.). 1981 Pesticide Use Report

Common name	Target pest/ purpose	Quantity used/treated Pounds 1/	Units 2/	
Herbicides: (Cont.)				
Tebuthiuron	Research	6.67	6.56	
	Rights-of-way	139.00	23.24	
	Rights-of-way	1,040.00	292.00	Side Miles
Trichlopyr	Conifer Release	20.00	9.00	
	Research	28.00	7.00	
	Rights-of-way	233.00	135.00	
	Site Preparation	88.00	30.00	
Trifluralin	General Weed Control	80.00	80.00	
	Grass Control	45.00	23.00	
2,4-D	Aquatic Weed Control	387.00	18.50	
	Aquatic Weed Control	308.00	21.00	Acre Feet
	Conifer Release	41,044.00	19,376.00	
	Conifer Release	67.00	800.00	Stumps
	Conifer Release/ Research	4.50	2.25	
	General Weed Control	322.00	339.00	
	Noxious Weeds	11,700.50	8,137.00	
	Nursery Weeds	16.62	9.00	
	Poisonous Plant Control	99.00	70.00	
	Range Improvement	2,798.00	1,822.00	
	Research	4.02	.10	
	Rights-of-way	5,592.00	2,328.00	
	Rights-of-way	3,668.00	756.00	Side Miles
	Site Preparation	15,942.00	6,128.00	
	Thinning	825.00	470.00	
	Wildlife Habitat Improvement	3,426.00	1,926.00	
2,4-DP	Rights-of-way	160.00	80.00	
2,4-D/Dicamba 2:1	Conifer Release	271.00	391.00	
	General Weed Control	210.00	106.00	
	Noxious Weeds	1,070.00	423.00	
	Rights-of-way	1,578.00	311.00	
	Thinning	24.00	41.00	
	Wildlife Habitat Improvement	202.00	116.00	
2,4-D/Dicamba 3:1	Noxious Weeds	66.00	224.00	
2,4-D/Picloram 4:1	Conifer Release	15,716.00	19,304.00	
	General Weed Control	10.00	23.00	
	Noxious Weeds	2,828.50	1,015.00	
	Poisonous Plant Control	137.50	165.00	
	Range Improvement	110.00	55.00	
	Research	30.00	120.00	
	Rights-of-way	599.70	280.00	
	Rights-of-way	353.00	255.00	Side Miles
	Site Preparation	59,643.00	41,349.00	
	Thinning	2,982.00	2,982.00	
	Wildlife Habitat Improvement	2,740.00	3,055.00	

Table 51 (con.). 1981 Pesticide Use Report

Common name	Target pest/ purpose	Quantity used/treated Pounds 1/	Units 2/	
Herbicides: (Cont.)				
2,4-D/Picloram 2:1	Range Improvement	6.00	10.00	
	Rights-of-way	174.00	58.50	
2,4-D/2,4-DP 2:2	Conifer Release	124.00	55.00	
	Rights-of-way	822.00	253.00	
	Rights-of-way	558.00	159.00	Side Miles
2,4-D/MCPP/Dicamba	Rights-of-way	21.00	30.00	
2,4,5-T	Research	220.00	55.00	
Sodium Metaborate	General Weed Control	2,362.50	11.10	
	Grass Control	2.00	1.00	
	Nursery Weeds	20.00	1.00	
Oryzalin	Rights-of-way	19.00	5.00	
Vernolate	Grass Control	12.00	8.00	
Total 1981 Herbicide Use (Including Aerial Use)		380,828.37	197,043.53	
Total Aerial Use		113,398.50	49,426.00	
Insecticides:				
Acephate	Pandora Moth	2,250.00	3,000.00	
Bacillus thuringiensis	Spruce Budworm	2,428.00	2,428.00	(A)
	Spruce Budworm	134,008.00 BIUs	28,750.00	(A)
Malathion	Grasshoppers	4,522.00	9,100.00	(A)
Acephate	Elm Leaf Beetle	.50	70.00	Trees
	Seed and Cone Insects	9.29	14.00	
Azinphos-Methyl	Seed and Cone Insects	6,431.00	42,118.00	Trees
Bacillus thuringiensis	General Insect Control	36.00 BIUs	36.00	
	General Insect Control	36.00 BIUs	2.00	
Carbaryl	Bark Beetles	146.00	537.00	Trees
	Elm Leaf Beetle	8.00	50.00	Trees
	Engraver Beetles	8.60	47.00	
	Fleas	27.00	66.00	
	General Insect Control	190.00	41.00	
	General Insect Control	4.00	750.00	Trees
	Grasshoppers	4.00	5.00	
	Mountain Pine Beetle	1,640.00	4,710.00	
	Mountain Pine Beetle	2,420.00	19,500.00	Trees
	Nursery Insects	1.00	1.00	
	Seed and Cone Insects	54.00	54.00	

Table 51 (con.). 1981 Pesticide Use Report

Common name	Target pest/ purpose	Quantity used/treated		
		Pounds 1/	Units 2/	
Insecticides: (Cont.)				
	Western Pine Beetle/ Research	18.00	60.00	
Carbofuran	Seed and Cone Insects	4,981.00	37,640.00	Trees
	Tip Moths	330.00	30.00	
	Nursery Insects	200.00	5.00	
Chlorpyrifos	General Insect Control	20.00	500.00	Trees
Coumaphos	Cattle Ticks and Lice	180.00	900.00	Cattle
Diazinon	Bagworm	3.00	20.00	Trees
	Cutworms	24.00	29.00	
	Fleas	12.00	24.00	
	Nursery Insects	108.00	32.00	
	Sugar Cane Root Borer	6.00	1.50	
	White Grub	1.20	3.00	
Dimethoate	Pine Tip Moths	8.00	12.00	
	Tip Moths	1.50	5.00	
Disulfoton	Birch Leaf Miner	2.70	1.00	
Ethylene Dibromide	Mountain Pine Beetle	765.00	2,330.00	Trees
Fenitrothion	Western Pine Beetle/ Research	61.25	105.00	Trees
Lindane	Balsam Woolly Aphid	144.00	19,000.00	Trees
	General Insect Control	4.00	100.00	Trees
	Seed and Cone Insects	7.00	1,800.00	Trees
	Southern Pine Beetle	7.00	510.00	Trees
	Tip Moths	1.00	2.50	
Malathion	General Insect Control	2.00	2.00	
	General Insect Control	45.00	50.00	Building
	Grasshoppers	160.00	320.00	
	Mosquitoes	100.00	78.00	
	Nursery Insects	14.00	31.00	
	Seed and Cone Insects	11.00	70.00	
Methoxychlor	General Insect Control	40.00	40.00	
Methyl Bromide	Ants	36.00	254.00	
	Nursery Insects	3,629.00	13.00	
Permethrin	Seed and Cone Insects	5.04	144.00	Trees
	Western Pine Beetle/ Research	6.13	105.00	Trees

Table 51 (con.). 1981 Pesticide Use Report

Common name	Target pest/ purpose	Quantity used/treated Pounds 1/	Units 2/
Insecticides: (Cont.)			
Toxaphene	Cattle Ticks and Lice	480.00	6,000.00 Cattle
Pheromone	Shoot Moths	2.00	400.00
Amdro	Ants	1.00	4.00
Total 1981 Insecticide Use (Including Aerial Use)		31,595.21	49,671.00*
Total Aerial Use		9,200.00	43,278.00
* Plus 6,900 cattle, 125,279 Trees, 50 Buildings			
Algicides:			
Copper Sulfate	Aquatic Weed Control	350.00	1.00
Copper Triethanol-amine	Aquatic Weed Control	3.00	7.00
Total 1981 Algicide Use		353.00	8.00
Fungicides and Fumigants:			
Benomyl	Botrytis	10.00	21,600.00 Sq Ft
	Damping Off	1.20	4,320.00 Sq Ft
	Nursery Fungi	167.00	154.41
	Nursery Fungi	6.00	450,000.00 Seedlings
	Nursery Fungi	2.00	200,000.00 Trees
	Nursery Root Rot	2.00	.50
	Tomato Blight	72.00	36.00
Borax	Fomes annosus	5,060.00	2,476.00
	Fomes annosus	340.00	3,700.00 Stumps
Captan	Nursery Fungi	93.00	73.69
	Nursery Fungi	2.00	1.00 Greenhouses
	Tomato Blight	216.00	36.00
Chloropicrin	Nursery Fungi	16,067.00	75.75
Chlorothalonil	Botrytis	4.00	8,640.00 Sq Ft
	Scleroderris	804.00	179.00
	Nursery Fungi	373.00	229.00
Dazomet	Nursery Fungi	2,083.00	10.60
	Nursery Fungi	4.00	34.00 Cold Frames

Table 51 (con.). 1981 Pesticide Use Report

Common name	Target pest/ purpose	Quantity used/treated Pounds 1/	Units 2/
Fungicides and Fumigants: (Cont.)			
Ethylene Dibromide	Nursery Fungi	170.00	.60
Ferbam	Nursery Fungi	840.00	3.00
Maneb	Scleroderris	207.00	58.00
	Tomato Blight	108.00	36.00
Methyl Bromide	Nursery Fungi	48,685.00	120.75
	Nursery Fungi	175.00	8.00 Cold Frames
Thiram	Damping Off	4.00	9.00
	Damping Off	62.00	4,100.00 Lbs of Seed
Vorlex	Nursery Fungi	9,694.00	41.00
Zineb	Nursery Fungi	5.00	3.00
Triadimefon	Nursery Fungi	35.00	40.00
Anilazine	Tomato Blight	72.00	36.00
Total 1981 Fungicide and Fumigant Use		85,363.20	3,618.30
Predacides and Piscicides			
Antimycin	Trash Fish	.55	6.00
	Trash Fish	.90	2.00 Stream Miles
Rotenone	Trash Fish	19.00	86.00
	Trash Fish	2.00	80.00 Acre Feet
	Trash Fish	6.00	61.00 Stream Miles
Sodium Cyanide	Coyotes	1.80 Grams	N/A
Total 1981 Predacide and Piscicide Use		28.45	92.00
Repellents:			
Bone Tar Oil	Deer	239.00	384.00
Putrescent Egg Solids	Deer	1,039.00	5,838.00
Total 1981 Repellent Use		1,278.00	6,222.00

Table 51 (con.). 1981 Pesticide Use Report

Common name	Target pest/ purpose	Quantity used/treated Pounds 1/	Units 2/
Rodenticides:			
Diphacinone	Commensal Rodents	.40	4.00 Bait Stations
Sodium Nitrate	Commensal Rodents	.78	10.00
	Pocket Gophers	14.00	180.00
Strychnine	Commensal Rodents	2.70	15.00
	Pocket Gophers	768.31	32,073.50
	Pocket Gophers	1.00	50.00 Burrows
	Porcupines	.06	3.00 Bait Stations
Zinc Phosphide	Commensal Rodents	783.00	19,079.00
Total 1981 Rodenticide Use		1,570.25	51,357.50
Wood Preservatives:			
Pentachlorophenol	Decay/Research	30.00	300.00 Trees
Copper	Termite/Research	195.00	5,550.00 Trees
Arsenic Salts	Termite/Research	30.00	300.00 Trees
Total 1981 Wood Preservative Use		255.00	6.150.00 Trees
Grand Total Pesticide Use		501,271.48	308,012.33

1/ Quantities expressed in pounds unless otherwise indicated.

2/ Units treated are expressed in acres unless otherwise indicated. Aerial applications are indicated by (A). All others are ground applications.

Table 52. Wildfires on State and private lands protected under the Cooperative Forestry Assistance Act (P.L. 95-313)--calendar year 1980

State	Area protected (thousand acres)	Human-caused fires (number)	Human-caused area burned (acres)
Alabama	25,029	6,062	120,289
Alaska	34,507	166	58,388
Arizona	18,328	155	25,037
Arkansas	20,668	5,866	150,976
California	33,153	11,169	248,930
Colorado	24,485	1,499	15,999
Connecticut	2,390	1,489	1,772
Delaware	557	40	211
Florida	26,135	6,589	122,510
Georgia	27,279.	9,911	39,955
Guam	82	303	3,503
Hawaii	3,306	360	10,698
Idaho	7,127	172	8,939
Illinois	8,453	202	5,780
Indiana	7,328	145	1,145
Iowa	7,612	3,924	21,630
Kansas	19,793	3,584	103,134
Kentucky	17,038	2,999	364,227
Louisiana	20,939	8,374	87,358
Maine	17,743	972	2,258
Maryland	3,700	1,011	16,237
Massachusetts	3,581	10,430	11,240
Michigan	19,675	827	9,211
Minnesota	22,830	2,337	126,003
Mississippi	19,858	8,488	101,111
Missouri	15,984	6,059	85,103
Montana	25,866	97	455
Nebraska	27,154	2,301	31,064
Nevada	8,777	166	5,454
New Hampshire	4,631	1,216	594
New Jersey	2,705	2,366	10,855
New Mexico	40,199	198	5,518
New York	16,958	732	5,156
North Carolina	20,817	4,248	47,108
North Dakota	24,284	201	3,470
Ohio	5,823	678	2,155
Oklahoma	5,087	2,570	83,205
Oregon	13,099	691	6,446
Pennsylvania	19,541	1,819	8,506
Rhode Island	512	680	593

Table 52 (con.). Wildfires on State and private lands protected under the Cooperative Forestry Assistance Act (P.L. 95-313)--calendar year 1980

State	Area protected (thousand acres)	Human-caused fires (number)	Human-caused area burned (acres)
South Carolina	13,289	6,233	22,791
South Dakota	25,816	1,161	18,713
Tennessee	12,478	4,758	60,550
Texas	22,123	3,230	40,706
Utah	14,724	232	4,444
Vermont	4,638	263	771
Virginia	18,519	2,357	5,364
Washington	13,177	458	1,236
West Virginia	12,833	1,654	46,834
Wisconsin	18,898	2,155	26,263
Wyoming	25,540	443	7,801
Total	805,068	134,040	2,187,696

Table 53. Summary of selected cooperative forest management and processing program activities--selected fiscal years

	Woodland owners assisted (number)	Timber sale assistance--volume marked (thousand board feet)	Loggers and processors assisted (number)
1945	8,093	411,330	--
1950	22,828	518,566	--
1955	34,828	549,373	8,182
1960	82,188	569,178	8,099
1965	99,074	716,950	9,248
1970	115,197	1,225,520	13,620
1971	127,828	860,950	14,627
1972	274,001	955,627	5,290
1973	106,422	1,578,664	4,855
1974	117,990	907,311	5,353
1975	140,940	677,532	5,405
1976	105,184	596,599	15,318
1976-77 (T.Q.)1/	25,253	220,649	5,849
1977	133,619	921,171	29,101
1978	165,329	1,120,743	12,749
1979	183,535	755,103	11,393
1980	176,385	870,964	11,582
1981	**164,279**	**683,181**	**18,609**

1/ Transition Quarter.

Table 54. Summary of selected cooperative forest management and processing activities by Region--fiscal year 1981.

Assistance activity	Unit of Measure 1/	Regions						
		Northern	Rocky Mountan	South-western	Inter-mountain	Pacific southwest	Pacific northwest	Alaska
Woodland owners assisted	Number	2,144	3,227	259	516	4,160	11,075	832
Assists to loggers and processors	Number	118	752	74	53	379	185	161
Forest management plans prepared	Number	381	802	133	92	377	952	355
	M acres	34.3	48.7	94.8	87.0	71.7	88.2	58.7
Reforestation								
Planting	Acres	520	1,379	456	268	5,848	20,443	61
Seeding	Acres	--	14	--	--	15	--	--
Management for natural regeneration	Acres	103	257	1,691	77	1,303	--	220
Timber stand improvement	Acres	1,675	4,673	2,559	630	3,717	15,270	2,397
Outdoor recreation development	Acres	1,223	3,596	49,229	5,000	628	49	2,500
Wildlife habitat development	Acres	410	8,901	51,732	160	7,057	434	20,814
Forested range improvement	Acres	203	6,887	28,382	54,865	6,822	3,378	--
Timber sale assistance volume harvested	M cu. ft.	1,660	8,765	1,898	1,185	599	6,247	6,500
Improved utilization								
Harvesting	M cu. ft.	450	2,513	1,354	362	4,132	12,204	200
Primary processing	M cu. ft.	1,335	800	655	301	7,724	12,284	596
Second processing and drying	M cu. ft.	100	338	--	77	20	--	--
Fuel and byproducts	M cu. ft.	121	2,129	92	175	324	22	10
Urban forestry assistance activities	Urban areas assisted	26	423	9	68	286	80	2
Referrals to consulting foresters	Number	42	136	10	9	1,199	307	25

1/ M = Thousand

Table 54 (con.). Summary of selected cooperative forest management and processing activities by Region--fiscal year 1981

Assistance activity	Unit of Measure 1/	South-eastern Area	North-eastern Area	Total
Woodland owners assisted	Number	63,661	78,405	164,279
Assists to loggers and processors	Number	6,429	10,458	18,609
Forest management plans prepared	Number	23,957	23,137	50,186
	M acres	2,052.7	1,230.2	3,766.3
Reforestation				
Planting	Acres	337,257	62,255	428,487
Seeding	Acres	10,139	1,128	11,296
Management for natural regeneration	Acres	35,253	18,644	57,548
Timber stand improvement	Acres	152,580	116,550	300,051
Outdoor recreation development	Acres	25,859	25,070	113,154
Wildlife habitat development	Acres	121,048	79,953	290,509
Forested range improvement	Acres	16,656	2,472	119,665
Timber sale assistance volume harvested	M cu. ft.	114,003	55,138	195,995
Improved utilization				
Harvesting	M cu. ft.	9,718	22,558	53,491
Primary processing	M cu. ft.	19,423	30,522	73,640
Second processing and drying	M cu. ft.	2,806	6,352	9,693
Fuel and byproducts	M cu. ft.	18,092	20,240	41,205
Urban forestry assistance activities	Urban areas assisted	698	1,955	3,547
Referrals to consulting foresters	Number	4,102	5,969	11,799

1/ M = Thousand

Table 55. Summary of selected cooperative forest management and processing activities by State--fiscal year 1981

State	Woodland owners assisted (number)	Area receiving reforestation assistance (acres)	Area receiving TSI 1/ assistance (acres)	Timber sale assistance--volume harvested (thousand cubic ft.)	Assists to loggers and processors (number)	Improved utilization (thousand cubic ft.)	State nursery production (thousand trees)
Alabama	4,464	34,369	16,639	3,713	30	4,884	55,826
Alaska	832	281	2,397	6,500	161	80	233
Arizona	76	567	1,666	90	30	782	-
Arkansas	1,076	25,667	8,500	393	4	125	27,467
California	3,782	6,742	3,688	583	331	11,551	4,996
Colorado	1,594	1,061	2,546	7,910	528	2,219	1,578
Connecticut	1,056	1,790	4,540	828	96	723	2,133
Delaware	869	1,345	97	870	11	531	227
Florida	1,624	61,424	3,363	11,651	464	5,121	48,492
Georgia	15,615	39,191	3,601	245	279	11,355	78,213
Guam	29	7	24	--	--	--	30
Hawaii	349	417	5	16	48	649	113
Idaho	1,013	344	361	393	19	96	929
Illinois	1,164	669	3,346	850	37	850	6,500
Indiana	3,397	3,900	12,153	974	842	3,033	6,000
Iowa	1,248	4,482	1,440	324	3	52	3,621
Kansas	742	322	511	277	144	1,674	1,110
Kentucky	1,848	2,532	7,497	1,124	159	3,769	10,700
Louisiana	1,957	11,310	4,090	245	3	2,400	73,200
Maine	3,572	2,768	3,483	5,495	1,544	5,183	2,694
Maryland	3,193	4,097	1,583	556	112	17,456	2,940
Massachusetts	3,500	6,774	9,195	5,241	198	3,882	--
Michigan	1,662	6,870	7,098	418	32	3,565	9,500
Minnesota	7,340	4,999	6,299	3,361	867	5,653	22,415
Mississippi	10,796	37,090	25,845	9,883	188	3,387	65,484

Table 55 (con.). Summary of selected cooperative forest management and processing activities by State--fiscal year 1981

State	Woodland owners assisted (number)	Area receiving reforestation assistance (acres)	Area receiving TSI 1/ assistance (acres)	Timber sale assistance--volume harvested (thousand cubic ft.)	Assists to loggers and processors (number)	Improved utilization (thousand cubic ft.)	State nursery production (thousand trees)
Missouri	4,365	6,660	6,339	3,695	667	1,849	10,483
Montana	548	144	1,220	1,262	85	1,899	1,007
Nebraska	583	227	250	24	12	--	3,147
Nevada	299	250	618	465	9	285	125
New Hampshire	7,449	1,772	5,597	2,721	3,506	5,639	901
New Jersey	1,377	3,008	1,955	471	389	2,801	787
New Mexico	183	1,580	893	1,808	44	1,319	-
New York	5,704	3,928	11,149	11,379	1,420	4,978	5,805
North Carolina	4,686	51,010	2,172	24,141	53	6,828	57,390
North Dakota	583	135	94	5	14	11	1,251
Ohio	5,663	1,487	9,006	1,168	52	4,093	8,311
Oklahoma	338	2,380	1,682	466	3	55	4,994
Oregon	8,180	14,683	10,632	1,314	68	11,532	23,200
Pennsylvania	3,151	3,188	4,986	1,017	395	5,437	4,507
Puerto Rico	1,310	284	203	--	--	--	600
Rhode Island	350	39	364	272	11	72	--
South Carolina	2,588	35,992	12,472	4,613	13	3,239	59,316
South Dakota	174	--	691	226	4	4	573
Tennessee	2,712	2,879	699	2,357	314	957	7,116
Texas	2,064	29,447	43,535	5,595	150	4,085	37,947
Utah	217	95	12	720	44	630	290
Vermont	4,563	141	5,886	4,260	140	4,086	58
Virgin Islands	63	18	14	--	--	--	13
Virginia	12,520	49,056	22,268	49,577	4,769	3,834	57,948
Washington	2,895	5,760	4,638	4,933	117	12,978	23,400
West Virginia	4,418	3,057	10,946	1,337	61	6,604	3,886
Wisconsin	14,364	21,053	11,088	9,901	75	3,185	16,180
Wyoming	134	40	675	328	64	1,883	334
Total	164,279	497,331	300,051	195,995	18,609	178,029	753,970

1/ TSI = timber stand improvement.

Table 56. Works of improvement installed in watershed protection projects--fiscal years 1979-1981 and total to date

	Unit of measure	1981	1980	1979	Total 1954-1981
Channel improvement	Miles	--	--	--	6.6
Channel stabilization	Miles	--	--	--	13.0
Contour terrace and furrows	Miles	--	--	--	916.7
Area treated	Acres	--	--	--	14,409.0
Gully control and stabilization	Miles	.8	--	.1	195.9
Grade stabilization structures	Number	--	--	403.0	3,296.0
Critical area stabilization by tree planting and other measures	Acres	219.0	452.2	340.0	42,994.4
Forest road and roadbank stabilization	Miles	14.7	551.9	66.5	1,908.4
Area treated	Acres	27.2	2,138.4	409.5	5,926.3
Fire roads, trails, and firebreaks and fuelbreaks	Miles	61.0	21.7	48.0	1,593.0
Fire control water developments	Number	--	--	--	43.0
Fire towers	Number	--	--	--	8.0
Intensified fire protection	Acres	20,075.0	140.0	400.0	2,321,270.0
Heliports and helispots	Number	--	--	3.0	42.0
Mobile fire equipment	Number	--	--	1.0	60.0
Other fire control improvements	Number	--	--	--	458.0
Radio installations	Number	--	--	--	52.0
Forest watershed management					
Plans prepared	Number	3,790.0	1,322.0	1,531.0	22,879.0
Area included	Acres	60,353.0	90,612.0	101,197.0	2,050,668.0
Forest stand improvement	Acres	--	20.0	115.0	1,082,446.0
Proper harvest cutting	Acres	9,555.0	13,436.0	15,136.0	527,927.0
Range and grass seeding	Acres	739.0	121.0	116.0	48,350.0
Tree planting and seeding	Acres	7,693.0	8,289.0	7,538.0	284,544.0
Revegetation, surface mined areas	Acres	700.0	--	23.0	2,505.0
Woodland thinning and release	Acres	3,824.0	4,554.0	5,055.0	705,883.0
Woodland grazing control	Acres	1,113.0	857.0	946.0	290,251.0
Recreation area development	Acres	88.0	384.0	270.0	31,880.0
Wildlife habitat development	Acres	2,094.0	1,266.0	2,412.0	29,765.0
Wildlife ponds	Number	4.0	22.0	2.0	79.0

Table 57. Works of improvement installed in flood prevention projects--fiscal years 1979-1981 and total to date

	Unit of measure	1981	1980	1979	Total 1944-81
Structural Measures:					
Access road construction	Miles	**6.0**	9.0	32.0	160.0
Channel improvement	Miles	--	1.0	15.0	39.6
Channel stabilization	Miles	--	1.1	11.0	349.5
Diversion ditches	Linear Ft.	--	--	1,000.0	30,477.0
Floodwater retarding structures	Number	--	--	--	3.0
Grade stabilization structures	Number	**574.0**	--	--	1,690.0
Streambank stabilization	Miles	--	--	--	11.3
Land Treatment Measures:					
Critical area stabilization by tree planting & other measures	Acres	**308.0**	513.0	1,363.0	332,619.1
Forest road and roadbank					
Stabilization	Miles	**478.0**	213.3	153.2	2,622.8
Area treated	Acres	**285.0**	707.0	392.0	19,113.9
Forest watershed management					
Plans prepared	Number	**1,169.0**	1,133.0	1,569.0	22,041.0
Area included	Acres	**82,553.0**	70,294.0	70,310.0	2,064,501.0
Firebreaks and fuelbreaks	Miles	**22.5**	43.0	6.0	3,368.5
Fire roads and trails	Miles	**38.0**	13.0	9.0	576.6
Fire hazard reduction	Acres	**587.0**	--	--	12,712.3
Fire water developments	Number	--	2.0	2.0	185.0
Fire towers	Number	--	--	--	46.0
Heliports and helispots	Number	--	1.0	1.0	460.0
Mobile equipment	Number	--	--	1.0	120.0
Other fire improvements	Number	**5.0**	1.0	2.0	222.0
Permanent radio installations	Number	--	5.0	--	318.0
Proper harvest cutting	Acres	**57,266.0**	51,064.0	66,206.0	649,930.0
Forest stand improvement	Acres	**490.0**	--	--	660,954.0
Tree planting and seeding	Acres	**8,506.0**	9,492.0	11,336.0	513,884.0
Woodland thinning and release	Acres	**5,704.0**	1,185.0	12,372.0	452,031.0
Revegetation, surface mined areas	Acres	**177.0**	170.0	269.0	7,608.0
Woodland grazing control	Acres	**3,567.0**	1,795.0	1,343.0	189,949.0
Woodland owners assisted	Number	**12,680.0**	11,316.0	23,546.0	676,881.0

Table 58. Summary of Forest Research accomplishments--fiscal years 1978-1981

	1981	1980	1979	1978
Publications, including those of how-to-do-it nature and papers published in proceedings.	2,010	1,892	1,954	1,780
Published abstracts, book reviews, letters to the editor, unpublished theses, and papers presented but not published.	1,395	1,277	1/	1/
General interest articles such as articles in Forest Research in the West, informational brochures, Research Work Unit fact sheets, etc.	139	130	1/	1/
Public patents awarded.	19	13	4	12
Technical papers prepared to represent official Forest Service position on policy or issues. (Unpublished)	120	179	599	730
Material prepared specifically for training. May include published or unpublished material, training films, etc.	172	150	111	147
Models or computer programs prepared and available for use. Each must be validated and include instructions.	120	119	134	126
Slide talks produced for public distribution.	32	18	40	59
Films produced for public distribution.	13	4	6	6
Technical workshops, symposia, field tours, or training.	968	982	691	479
Documented uses of information resulting from technical consultations.	2,096	1,904	1,857	1,331
Management prescription guidelines included in handbooks or supplements prepared for use by Federal or State agencies or by the private sector.	44	72	117	272
New or improved-trees, shrubs, etc. developed and available for release.	6	27	13	4
Number of equipment prototypes developed and operational.	51	66	79	45

1/ Accomplishments were not compiled for these categories in 1978 and 1979.

Table 59. Research manuscripts by major subject area published in fiscal years 1980 and 1981

	Number of publications	
	1981	1980
Environmental Research:		
Watershed management	144	119
Wildlife	154	176
Range	53	47
Fisheries habitat	31	28
Forest recreation	74	90
Urban forestry	40	71
Disturbed areas rehabilitation	44	44
Subtotal	540	575
Insect and Disease Research:		
Insect detection and evaluation	60	60
Insect biology	109	60
Insect control and management strategies	94	102
Disease detection and evaluation	32	15
Disease biology	60	52
Disease control and management	46	36
Air pollution	13	8
Wood products organisms	16	24
Subtotal	430	357
Fire and Atmospheric Sciences Research:		
Fire prevention, hazard reduction, and prescribed burning	24	25
Fire management methods and systems	23	28
Forest fire science	20	22
Ecological relations	31	41
Weather modification and weather effects	14	24
Subtotal	112	140
Timber Management Research:		
Biological relations	151	134
Silviculture	115	131
Management mensuration	73	73
Genetics and tree improvement	80	60
Special products	4	7
Subtotal	423	405
Economics and Marketing Research:		
Forest resource evaluation	95	99
Forest economics	63	61
Supply, demand, and price analysis	36	51
Subtotal	194	211

Table 59 (con.). Research manuscripts by major subject area published in fiscal years 1980 and 1981

	Number of publications	
	1981	1980
Products and Engineering Research:		
Improving forest engineering systems	45	25
Wood engineering	45	25
Wood chemistry and fiber products	73	43
Utilization potential and processing of wood	148	111
Subtotal	311	204
Total	2,010	1,892

Table 60. Forest Research funding--fiscal years 1979-1981
(dollars in thousands)

	1981		1980	1979
	Actual	RPA		
Appropriated Funds:				
Land and resource protection research:				
Fire and atomspheric science	**10,343**	10,762	9,764	9,728
Forest insect and disease	**24,480**	25,189	21,780	21,456
Renewable resources evaluation	**15,547**	16,239	13,933	14,104
Renewable resources economics	**6,004**	6,439	5,167	4,950
Surface environment and mining	**2,218**	2,462	1,659	3,155
Subtotal	**58,592**	61,091	52,303	53,393
Renewable resources management and utilization research:				
Trees and timber management	**24,537**	25,418	20,620	19,754
Forest watershed management	**10,461**	10,555	9,952	9,665
Wildlife, range and fish habitat	**9,905**	10,542	8,735	8,987
Forest recreation	**2,556**	2,594	2,179	3,296
Forest products utilization	**18,575**	20,031	15,342	13,518
Forest engineering	**3,186**	3,472	2,400	2,334
Subtotal	**69,220**	72,612	59,228	57,554
Research construction 1/	**3,200**	3,200	3,634	3,523
Total, Appropriated Funds 2/	**131,012**	136,903	115,165	114,470
Nonappropriated funds:				
Other Federal Government agencies	**1,857**	--	794	3,673
State and local governments	**122**	--	27	495
Private industry	**3**	--	3	172
Other	**81**	-	47	94
Total, Nonappropriated Funds	**2,063**	--	871	4,434
Grand Total	**133,075**	136,903	116,036	118,904

1/ Part of Construction and Land Acquisition.
2/ Includes pay act costs and supplementals.

Table 61. Extramural research funded through the Forest Service--fiscal years 1980 and 1981 (dollars in thousands)

Type of Recipient	1981 Number	1981 Dollars	1980 Number	1980 Dollars
Domestic Grantees:				
Universities and Colleges:				
Land-Grant Institutions				
Research	9,669	495	363	6,693
S&E-CR 1/	981	20	16	835
1890 land-grant and predominately black institutions	266	7	6	59
Other non-land-grant Institutions	1,997	141	134	2,018
S&E-CR 1/	96	5	--	--
Subtotal	13,009	668	518	9,605
Non-profit institutions and organizations:	578	33	20	409
State and Local Governments	350	9	11	165
Industrial Firms	53	4	3	103
Private Individuals	43	5	6	58
Total, Domestic Grantees	14,033	719	558	10,340
Foreign Grantees:				
Universities and Colleges	107	4	6	170
Government Agency	--	--	2	46
Non-Profit Institutions Organizations	62	2	--	--
Total, Foreign Grantees	169	6	8	216
Grand Total	14,202	725	566	10,556

1/ Grants executed by Science and Education-Cooperative Research with ForestService Accelerated Pest Program funds.

Table 62. Summary of Forest Service human resource programs--fiscal year 1981

Program	Program funding (million of dollars)	Value of work accomplished	Number of persons served	Percent		Person years accomplished	Percent placement	Return per dollar invested
				Women	Minority			
Youth Conservation Corps[1/]	4.0	4.5	2,034	46	24	300	--	$ 1.13
Young Adult Conservation Corps[2/]	60.5	72.0	18,617	35	30	5,398	--	1.20
Job Corps	46.5	15.4	8,000	4	59	3,922	88	--
Senior Community Service Employment Program [3/]	16.2	23.6	4,500	33	20	2,250	--	1.45
Volunteers in the National Forests	Unfunded	8.2	16,399	33	13	756	--	--
Hosted Programs	Unfunded	10.5	4,724	37	29	1,030	--	--
Total	127.2	134.2	54,274	--	--	13,656	93	--

1/ Figures listed are for the portion of the program operated by the Forest Service. In addition, YCC and YACC carry out conservation work on land administered by the Department of the Interior and on non-Federal public lands through grants to States.
2/ Includes approximately $5.9 million carryover into fiscal year 1981 and $4.8 million deferral.
3/ Statistics are projected for the July 1, 1981 - June 30, 1982 program year.

BASIC PRINCIPLES

It is the policy of the United States--
(1) forests and rangeland, in all ownerships, should be managed to maximize their net social and economic contributions to the Nation's well being, in an environmentally sound manner.
(2) the Nation's forested land, except such public land that is determined by law or policy to be maintained in its existing or natural state, should be managed at levels that realize its capabilities to satisfy the Nation's need for food, fiber, energy, water, soil stability, wildlife and fish, recreation, and esthetic values.
(3) the productivity of suitable forested land, in all ownerships, should be maintained and enhanced to minimize the inflationary impacts of wood product prices on the domestic economy and permit a net export of forest products by the year 2030.
(4) in order to achieve this goal, it is recognized that in the major timber growing regions most of the commercial timber lands will have to be brought to and maintained, where possible, at 90 percent of their potential level of growth, consistent with the provisions of the National Forest Management Act of 1976 on Federal lands, so that all resources are utilized in the combination that will best meet the needs of the American people.
(5) forest and rangeland protection programs should be improved to more adequately protect forest and rangeland resources from fire, erosion, insects, disease, and the introduction or spread or noxious weeds, insects, and animals.
(6) the Federal agencies carrying out the policies contained in this Statement will cooperate and coordinate their efforts to accomplish the goals contained in this Statement and will consult, coordinate, and cooperate with the planning efforts of the States.
(7) in carrying out the Assessment and the Program under the Forest and Rangeland Renewable Resources Planning Act of 1974 and the Appraisal and the Program under the Soil and Water Resources Conservation Act of 1977, the Secretary of Agriculture shall assure that resource and economic information and evaluation data will be continually improved so that the best possible information is always available for use by Federal agencies and the public.

RANGELAND DATA BASE AND ITS IMPROVEMENT

The data on and understanding of the cover and condition of rangelands is less refined than the data on and understanding of commercial forest land. Rangelands have significant value in the production of water and protection of watersheds; the production of fish and wildlife food and habitat; recreation; and the production of livestock forage. An adequate data base on the cover and condition of rangelands should be developed by the year 1990. Currently, cattle production from these lands is annually estimated at 213 million animal unit months of livestock forage. These lands should be maintained and enhanced, including their water and other resource values, so that they can annually provide 310 million animal unit months of forage by the year 2030, along with other benefits.

GENERAL ACCEPTANCE OF HIGH BOUND PROGRAM

Congress generally accepts the "high-bound" program described on pages 7 through 18 of the 1980 Report to Congress on the Nation's Renewable Resources prepared by the Secretary of Agriculture. However, Congress finds that the "high-bound" program may not be sufficient to accomplish the goals contained in this statement, particularly in the areas of range and watershed resources, State and private forest cooperation and timber management.

States and owners of private forest and rangelands will be encouraged, consistent with their individual objectives, to manage their land in support of this Statement of Policy. The State and private forestry and range programs of the Forest Service will be essential to the furtherance of this Statement of Policy.

In order to accomplish the policy goals contained in this statement by the year 2030, the Federal Government should adequately fund programs of reasearch (including cooperative research, extension, cooperative forestry assistance and protection, and improved management of the forest and rangelands. The Secretary of Agriculture shall continue his efforts to evaluate the cost-effectiveness of the renewable resource programs.

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